# ADMINISTRATION REPORT

OF THE

# INDIAN STORES DEPARTMENT

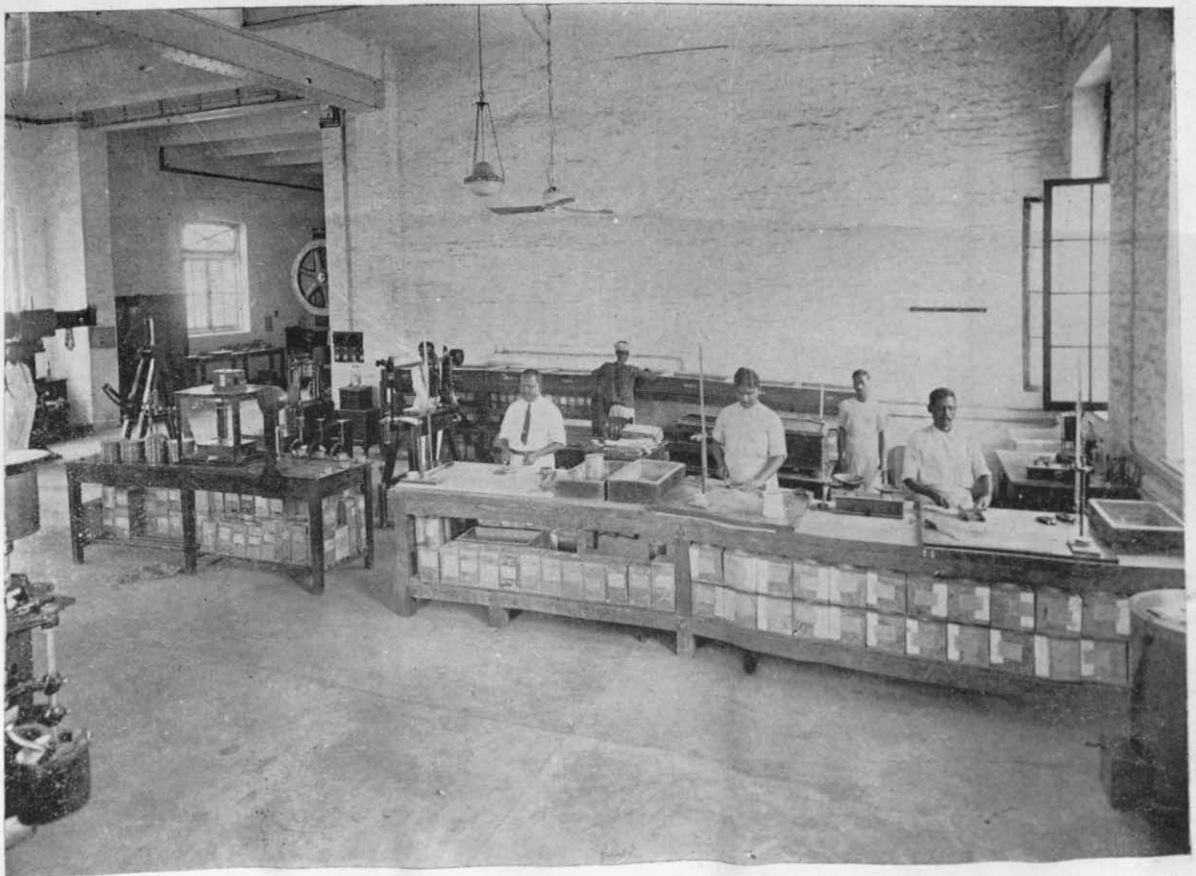
FOR THE YEAR

## 1926-27



CALCUTTA: GOVERNMENT OF INDIA
CENTRAL PUBLICATION BRANCH
1927

*Price Rs. 3-2 or 5s. 6d.*



The Cement Testing Laboratory, Government Test House, Alipore.

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# TABLE OF CONTENTS.


| | Particulars. | PAGES. |
|---|---|---|
| | REPORT | 1—23 |
| CHAPTER | I.—Summary | 1—2 |
| " | II.—Organisation | 2—3 |
| " | III.—Work done | 3—16 |
| " | IV.—The Metallurgical Inspectorate, Jamshedpur | 16—18 |
| " | V.—The Government Test House, Calcutta | 18—19 |
| " | VI.—Encouragement of Indian Industries and local purchase | 19—21 |
| " | VII.—Finance | 21—23 |
| | APPENDICES | 24—102 |
| APPENDIX | I.—Organisation of the Indian Stores Department | 24 |
| " | II.—Graph showing the progress of Indianisation in the Indian Stores Department | 25 |
| " | III.—Statement showing the value of stores purchased on behalf of various authorities utilising the services of the Indian Stores Department | 26—37 |
| " | IV.—Statement showing the value of the various classes of purchases, indigenous and imported separately | 38—39 |
| " | V.—Details of purchases by provinces | 40 |
| " | VI.—Diagrams showing work done by the Purchase Branch | 41—45 |
| " | VII.—Graph showing the values of stores purchased and numbers of contracts placed by the London and Indian Stores Departments | 46 |
| " | VIII.—Comparative statement of purchases made by the London and Indian Stores Departments | 47—49 |
| " | IX.—List of specifications framed by the Indian Stores Department | 50—66 |
| " | IXA.—List of schedules of requirements framed by the Indian Stores Department | 67—82 |
| " | X.—Diagrams illustrating work done by the Inspection Branch | 83—91 |
| " | XI.—Statement showing the amount of inspection work carried out on behalf of various authorities | 92 |
| " | XII.—Graph showing the progress of routine estimations at the laboratories of the Metallurgical Inspectorate | 93 |
| " | XIII.—List of the apparatus installed at the Metallurgical Inspectorate | 95—96 |
| " | XIV.—List of the apparatus installed at the Government Test House, Calcutta | 97—101 |
| " | XV.—Statement showing the articles tested at the Government Test House, Calcutta | 102—104 |
| | INDEX | 105—108 |


## ILLUSTRATIONS.


| | FACING PAGE. |
|---|---|
| 1. The Cement Testing Laboratory, Government Test House, Calcutta | Frontispiece. |
| 2. A portion of the Rail Inspection Bank at the Works of the Tata Iron and Steel Company where visual inspection and gauging of rails are carried out | 16 |
| 3. The Drop Testing Machine for rail testing at the Works of the Tata Iron and Steel Company | 18 |
| 4. The 100-Ton Horizontal Testing Machine, with Earthenware Pipe Testing Machine in the Government Test House, Calcutta | 19 |

# Administration Report of the Indian Stores Department for the year 1926-27.

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## CHAPTER I.

### Summary.

1. **General.**—The last report issued on the administration of the Indian Stores Department brought the record of the operations of the Department up to the end of March 1926. That report exhibited continuous progress of the activities of the Department in the various fields wherein it has been set to operate. The present report continues that record up to the end of the financial year 1926-27. This latter record is one of still further and marked progress in all directions. The clientèle of the Department, both in its purchase and inspection branches, not only received an addition of strength but also employed the Department to a larger extent than in the previous year. As a result, there was a substantial increase in the volume of the business actually transacted by the Department.

2. **Activities of the Purchase Branch.**—The value of the purchases effected by it rose from Rs. 2,66,68,000 to Rs. 3,98,82,000—an increase of 49·5 per cent. In the case of textile goods these purchases were, as in previous years, confined almost wholly to the products of India, the proportionate value of Indian products purchased having amounted to nearly 97 per cent. of the total. The bulk of the purchases of engineering and allied stores was, as formerly, represented by articles of foreign manufacture. This must continue to be so until considerable progress has been made in the development of the engineering industry of India, and until the Indian Stores Department is utilized to a larger extent than at present for the purchase of engineering material which is manufactured in India.

3. **Activities of the Inspection Branch (general).**—The expansion of the purchasing operations of the Department naturally reacted on the volume of the work carried out by the Inspection Branch ; but the operations of that Branch were further, and to a larger extent, broadened by the larger resort to the Department of authorities who effected their own purchases.

4. **Activities of the Metallurgical Inspectorate and the Government Test House.**—The tonnage of materials inspected at the Metallurgical Inspectorate at Jamshedpur increased by 14·9 per cent., having risen from 293,053 tons to 336,820 tons. There was also a substantial increase in the number of tests and analyses carried out by that organization and the Government Test House at Calcutta, both of which institutions undertook in addition a good deal of research work in various directions which will prove of substantial practical benefit to the industry and commerce of the country.

5. **Activities of the Provincial Inspectorates.**—The work entrusted to the Inspection Circles also was considerably larger than in the previous year, more noticeably in the Calcutta and the Bombay Inspection Circles, in which the increase of business amounted to 29·7 per cent. and 164·8 per cent. respectively.

6. **Specifications and advisory work.**—Much useful work was done in revising and bringing up-to-date a number of the existing specifications, in framing new specifications, and in affording technical advice in connection with certain important schemes involving the expenditure of several lakhs of rupees. In addition, progress was made in extending the survey of the indigenous sources of supply, and every opportunity that presented itself was taken to indicate to suppliers directions and the manner in which the quality of their products might be improved.

7. **Financial position.**—The accounts of the receipts of the Department, and of the expenditure debited directly to its budget grant, exhibit a satisfactory improvement, the year having ended with a debit balance of about one-third the amount of the corresponding balance of the previous year.

## CHAPTER II.

### Organisation.

8. **Changes in organisation during 1926-27.**—No material change in the organisation of the Department was made during 1926-27, though certain additions were sanctioned to the strengths of the superior and subordinate establishments to cope with the growth in the volume of business. As a result, however, of the revision of the Steel Industry (Protection) Act, the entire staff sanctioned in connection with the work of issuing certificates for the grant of bounties on steel ingots was dispensed with at the end of February 1927.

9. **Bifurcation of the Engineering Purchase Branch.**—The necessity for the division in February 1926 of the Engineering Purchase Branch in the office of the Chief Controller of Stores into two independent Branches, to deal with plant and machinery and hardware and miscellaneous stores respectively, was fully justified by the experience of the financial year 1926-27, the total volume of the purchases effected by these two branches having exceeded two crores of rupees, as against a total of Rs. 125 lakhs during the preceding year.

10. **Organisation of the Department at the end of the year.**—Appendix I gives a conspectus of the organisation as it stood at the end of the year 1926-27, the appointments added during the course of the year being shown in italics.

11. **Recruitment of the gazetted staff.**—During the year only four gazetted officers were appointed, of whom two were Indians and two non-Indians. Both the European officers were recruited through the High Commissioner for India in compliance with a requisition sent to him in the year 1925-26 as it was not found possible to recruit qualified Indians for the particular posts. One of the two Indian officers who were recruited was promoted from the subordinate establishment, and the other, an ex-State scholar in Metallurgy, was selected

on the recommendation of the High Commissioner for India on his return from England after completing a course of three years' training.

It was decided during the year to utilise the services of the Public Service Commission in connection with the recruitment of the gazetted staff of the Department.

12. **Numbers of European and Indian Officers in the Department.**—The numbers of Europeans and Indians holding gazetted appointments in the Department at the end of the year 1926-27 were 29 and 24 respectively. The graph in appendix II indicates the respective proportions of Indians and non-Indians in the gazetted staff of the Department at various stages since its constitution in 1922.

13. **Recruitment for the subordinate technical staff.**—The principles on which recruitment was made in the previous years for subordinate appointments of a technical character continued to be observed in filling this class of appointments, and no non-Indian was appointed to any such post during the year.

14. **Important changes in the gazetted staff during the year.**—Mr. Pitkeathly continued to hold the appointment of Chief Controller throughout the year, except for a short period at its beginning when he was away on leave and Lieutenant-Colonel Kirkhope acted for him. During the year, the Department lost the services of Mr. N. Garret-Smith, Assistant Metallurgical Inspector, by retirement from the service; of Mr. J. Cumming, Assistant Controller of Inspection, by transfer to the Lloyd Barrage and Canals Construction Scheme; and of Mr. N. N. Sen, Assistant Metallurgical Inspector, by transfer to the Bengal Engineering College, Sibpur.

## CHAPTER III.

### Work done.

15. **Procedure.**—The procedure followed by the Department in carrying out the functions entrusted to it has been fully described in paras. 43-49 of the report for 1925-26, and it will suffice to state here that this procedure remained unaltered during the year under review and was closely observed.

16. **Progress in extending the field of operations.**—The progress made in the year 1925-26 in extending the Department's field of operations was more than maintained during the year 1926-27. A number of authorities, comprising not only Departments of the State, both Central and Provincial, but also public bodies, such as Company Railways and Municipalities, Indian States and a certain number of private firms, who had not previously resorted to the Department for the purchase or inspection, or both, of stores required for their use, entrusted it with a not inappreciable volume of such business; while many of the previous clients of the Department utilised its services to a greater extent than hitherto. Particulars of these authorities and of the volume of business placed by them with the Department are contained in appendices III and XI.

17. **Inclusion of the Stores Department in the major local Governments' arrangements for Stores Purchase.**—A new development during the year, which may well prove to be of considerable practical importance to the Department, was the promulgation by some of the major local Governments of definite rules to regulate the purchase of stores required for the use of the Departments and officers subject to their authority. Most of these rules provide for the utilization in some form or other of the services of the Indian Stores Department. Thus, the Government of the Central Provinces have constituted the Indian Stores Department as one of the agencies which should be utilised by Departments and officers under their control for the purchase of plant and machinery and component parts from branches in India of manufacturing firms. The Governments of Bengal and the Punjab have gone further, having appointed the Indian Stores Department to be the sole purchasing agency for such stores. The Government of Bombay have prescribed that all purchases in India above Rs. 500 in value, whether of indigenous articles or of imported stores, except plant and machinery and component parts, shall be made through the agency of the Indian Stores Department, unless indenting officers can show that they can themselves purchase the materials more cheaply or (in cases of urgency) more expeditiously. They have also issued directions that all indents on the India Store Department, London, made by their Departments and officers should be forwarded through the Indian Stores Department, and further that the agency of the latter should, as far as possible, be utilised for the testing and inspection of all articles purchased in India which are required to conform to tests or specifications laid down by competent authority. These prescriptions imply a recognition in varying degrees by these Governments of the facilities which the Department is in a position to offer, and this recognition is rendered all the more gratifying by reason of the fact that these Governments are completely autonomous in this matter and are under no sort of obligation to utilise the services of the Department.

18. **Work of the Purchase Branch.**—The total number of indents and items dealt with rose from 6,401 and 39,485 respectively to 8,561 and 56,058, as detailed below :—

| —— | No. of indents. | | No. of items. | |
|---|---|---|---|---|
| | 1925-26. | 1926-27. | 1925-26. | 1926-27. |
| Headquarters . . . . . | 3,016 | 3,925 | 16,128 | 23,193 |
| Calcutta . . . . . | 1,740 | 2,344 | 12,051 | 16,916 |
| Bombay . . . . . | 1,157 | 1,079 | 7,645 | 6,989 |
| Karachi. . . . . . | 488 | 1,213 | 3,661 | 8,960 |
| | 6,401 | 8,561 | 39,485 | 56,058 |

As will be observed from appendix VI (v), the total value of the purchases made during the year increased from Rs. 2,66,67,933 to Rs. 3,98,82,245. This

increase was distributed over both textile goods and engineering and allied stores, but it was more marked in the case of the latter.

19. **Purchase of textile stores.**—The textile purchases, amounting to Rs. 1,62,86,293 in value, exceeded those of the preceding year by 37 per cent. A portion of this increase was due to the late receipt of certain important indents during 1925-26, but even if these particular purchases were excluded from the comparison there would remain a satisfactory increase of about 11 per cent. in the value of this class of business.

The figure of Rs. 1,62,86,293 approximates closely to the highest recorded since the constitution of the Department, and this fact gains in importance when it is remembered that since the record figure of Rs. 1,64,78,305 was reached in the year 1922-23 there has been both a diminution of the requirements of the Army in India, the largest consumer of textile goods, and also a general fall in prices.

Following previous practice, practically the whole of the textile goods bought were of Indian origin and manufacture, the proportion of goods of foreign manufacture purchased in the market amounting to 3·3 per cent. only.

20. **Purchase of engineering and miscellaneous stores.**—The value of the purchases of Engineering and allied stores amounted to Rs. 2,35,95,952, representing an increase of about 60 per cent. over the figure of the preceding year. The Central Departments increased their purchases through the Indian Stores Department by 45 per cent., the Railway Administrations (State and Company worked as well as those worked by Indian States) by 82 per cent., and the provincial Governments by 70 per cent. There was a considerable decline in the volume of the purchases made on behalf of Indian States, but this was counterbalanced by a corresponding increase in the purchases made for public bodies.

The bulk of these stores continued, for the reasons explained in the previous report, to be of foreign origin.

21. **Distribution of purchases.**—Appendix IV exhibits the total purchases made by the Department during the past five years, the indigenous and imported stores being shown separately in the case of textile goods. In effecting these purchases the Department availed itself of the most suitable sources of supply, and continued to distribute its business all over the country, as will be observed from the series of diagrams and statistics given in appendix V.

22. **Details of important purchases.**—The following were the more important purchases made during the year under report :—

TEXTILES.

| | Amount. |
|---|---|
| | Rs. |
| 1. Tents and components | 33,00,000 |
| 2. Blankets, woollen | 22,62,000 |
| 3. Drills, khaki and drab dark | 17,09,000 |
| 4. Cotton waste (for cleaning and axle box packing) | 7,99,000 |
| 5. Socks and stockings, woollen | 6,03,000 |
| 6. Paulins | 5,56,000 |

| | Rs. |
|---|---|
| 7. Putties, woollen and cotton | 5,52,000 |
| 8. Drills, white and coloured | 5,46,000 |
| 9. Serge drab mixture and serge lining | 3,67,000 |
| 10. Waistcoats, cardigan jackets and jerseys | 3,26,000 |
| 11. Yarn, cotton and woollen | 2,87,000 |
| 12. Durries, cotton and woollen | 2,77,000 |
| 13. Pagri cloth, khaki and other colours | 2,59,000 |
| 14. Rugs, horse | 2,55,000 |
| 15. Hessians and gunnies | 2,41,000 |
| 16. Blanketing cloth for overcoats | 2,36,000 |
| 17. Great coat cloth and coats | 2,28,000 |
| 18. Cordages and ropes | 2,10,000 |
| 19. Cotton white, sleeve lining | 2,09,000 |
| 20. Bags, waterproof | 1,95,000 |
| 21. Melton cloths | 1,91,000 |
| 22. Bags, postal | 1,66,000 |
| 23. Towelling cloth | 1,29,000 |
| 24. Dosuti cloth | 1,16,000 |
| 25. Twines, jute, hemp, cotton, etc. | 1,16,000 |
| 26. Twill, cotton | 1,15,000 |
| 27. Sheets, barrack | 1,06,000 |
| 28. Serge, lining | 96,000 |
| 29. Long cloth | 92,000 |
| 30. Sheets, hospital | 90,000 |
| 31 Cotton wool, absorbent, (surgical) | 87,000 |
| 32. Cambric, mulmul and muslin | 86,000 |
| 33. Cotton, grey, blue, etc. | 84,000 |
| 34. Cases, mattress, pillow, etc. | 73,000 |
| 35. Flannelette, mark III | 67,000 |
| 36. Gloves, worsted | 59,000 |
| 37. Cloth, linen, paramatta, alpaca, etc. | 57,000 |
| 38. Tape, cotton | 52,000 |
| 39. Kullahs | 51,000 |

## Engineering and Miscellaneous.

| | |
|---|---|
| 40. Electrical power generating plant and equipment | 13,42,000 |
| 41. Cement | 10,85,000 |
| 42. Oil, fuel | 10,18,000 |
| 43. Dragline excavators | 9,41,000 |
| 44. Road rollers | 8,64,000 |
| 45. Bitumen and asphaltum | 8,39,000 |
| 46. Rolled steel beams and joists, etc. | 8,23,000 |
| 47. Mild steel sections | 7,02,000 |
| 48. Pipes, C. I., and fittings, etc. | 6,92,000 |
| 49. Oil, axle | 6,10,000 |
| 50. Oil, kerosene | 5,95,000 |
| 51. Sheets, galvanised corrugated | 5,84,000 |
| 52. Rails and permanent way-materials | 5,12,000 |
| 53. Tyres and tubes, rubber | 4,50,000 |
| 54. Structural steel work | 4,80,000 |
| 55. Barges, steel | 4,29,000 |
| 56. Paints | 4,01,000 |

| | |
|---|---|
| | Rs. |
| 57. Oils, lubricating, miscellaneous | 3,79,000 |
| 58. Electrically driven Haulage equipment for Uhl River | 2,56,000 |
| 59. Locomotives, electric | 1,98,000 |
| 60. Tubes, steel | 1,87,000 |
| 61. Oil, cylinder, ordinary and superheat | 1,80,000 |
| 62. Tunnel construction plant | 1,77,000 |
| 63. Wagons, tipping and trucks' | 1,71,000 |
| 64. Cables and wires, electric | 1,33,000 |
| 65. Oil, linseed, raw and boiled | 1,32,000 |
| 66. Creosote | 1,23,000 |
| 67. Tractors and trailers | 1,23,000 |
| 68. Stone breakers | 1,19,000 |
| 69. Workshop machinery | 1,10,000 |
| 70. Locomotives, steam | 1,06,000 |
| 71. Weaving machinery | 1,00,000 |
| 72. Merryweather val ant pumps | 93,000 |
| 73. Cultivating machinery | 88,000 |
| 74. Fans, lamps and fittings, electric | 85,000 |
| 75. *Air compressors* | 80,000 |
| 76. *Wire, baling* | 75,000 |
| 77. Girders, bridge | 71,000 |
| 78. Petrol | 70,000 |
| 79. Pumping plant | 69,000 |
| 80. Belting of sorts (hair, leather, etc.) | 67,000 |
| 81. Timber for packing cases | 66,000 |
| 82. Timber (teakwood, etc.) | 57,000 |

23. **Provincial Purchase Agencies—Calcutta Purchase Circle.**—The services of the local purchasing agencies of the Department at Calcutta, Bombay and Karachi were utilised to a still larger extent during the year. In the Calcutta Circle the number of indentors increased by 22 per cent., from 195 to 238, the Public Works Department contributing most largely to this accretion. The number of indents received amounted to 2,344, consisting of 16,916 items, in respect of which 5,559 orders were placed. The total value of these orders amounted to Rs. 24,68,189, as compared with Rs. 23,40,092 during the preceding year. The former figure represents an increase of only 5½ per cent. over the transactions of the previous year, but this is not a fair indication of the extent of the growth of the business of the Circle, as during 1926-27 prices had generally shown a tendency to decrease. The volume of work gauged by the number of items dealt with showed an increase of about 40 per cent. during the year.

Among the larger purchases made by the Circle, that for the Public Works Department in the Madras Presidency consisting of drainage pipes and material required for the Madura Drainage Scheme is worthy of mention. This matter was first referred to the Department at the end of 1925, and an indent was received about a year later, apparently after the local authorities had satisfied themselves that purchase in India would be more suitable than the importation of the stores from abroad. The materials ordered were all of Indian manufacture.

24. **Bombay Purchase Circle.**—In the Bombay Purchase Circle there was an increase of 12 per cent. in the number of indentors which rose from 112 to

125. The Circle received 1,079 indents, consisting of 6,989 items, and placed 2,603 orders of the aggregate value of Rs. 7,43,053, as against Rs. 7,22,945 during the preceding year. Here again the lowering of prices tended to reduce the degree of expansion of business as indicated by the statistics of value.

25. **Karachi Purchase Agency.**—The number of indents received by the Karachi Purchase Agency amounted to 1,213 comprising 8,960 items. Against these 2,761 orders were placed, aggregating Rs. 9,10,470 in value, in comparison with Rs. 3,50,881 placed in the six months of the existence of the agency in 1925-26. The number of indentors who utilised the services of the agency rose by 62 per cent., from 60 to 97. The bulk of the business was carried out for the Northern Command, Military Engineering Services, the Punjab Public Works Department, and the Chief Engineer, Lloyd Barrage and Canals Construction Scheme.

26. **Advantages of local purchasing agencies.**—These agencies, as indicated in the report of the previous year, fulfil a most useful purpose in effecting purchases of comparatively small value which can best be made by organisations located in close proximity to the sources of supply, in ascertaining and acquainting Headquarters and also indentors with the local resources and the market prices, and in advising as to the suitability of firms for enrolment on the lists of suppliers maintained by the Department.

27. **Statistics of total purchases.**—The diagrams given in appendix VI indicate the volume of business transacted by each section of the Purchase Branch of the Department during the past five years.

28. **Running and rate contracts.**—During 1926-27 " running " or " rate " contracts, a description of which will be found in para. 44 of the previous year's report, existed for the following descriptions of stores :—

TEXTILES.

(*Cotton.*)

1. Bags dosuti, postal.
2. Bags kit, waterproof.
3. Bags nose, canvas.
4. Bags ration, waterproof.
5. Buckets canvas, for ponies.
6. Capes waterproof, Burman, with hoods.
7. Capes waterproof, Indian.
8. Cotton waste, coloured.
9. Cotton waste, white.
10. Cotton waste, white No. 1, teased, for axle boxes.
11. Drill, khaki.
12. Durries.
13. Ground sheets.
14. Haversacks, khaki, stockport.

15. Hoods for capes, waterproof, Burman.
16. Hoods for capes, waterproof, Indian.
17. Lining cloth.
18. Long cloth, bleached.
19. Paulins, of sizes.
20. Pugri cloth, khaki.
21. Pugri cloth, red.
22. Pugri cloth, white muslin.
23. Ropes, head and heel.
24. Tape.
25. Twill, khaki.
26. Umbrellas.
27. Uniforms (complete) for railway servants.
28. Waterproof cloth.

*(Woollen.)*

29. Blankets, barrack.
30. Broad cloth, superfine, scarlet.
31. Caps, Balaclava.
32. Drawers.
33. Jackets, cardigan.
34. Putties, khaki and blue.
35. Serge khaki, yellow, and other colours.
36. Socks.

*(Jute, hemp and miscellaneous.)*

37. Bags, mail, postal.
38. Buttons, gilt.
39. Lace, gold.
40. Neckgear, gold.
41. Paulins, flax.
42. Paulins, jute.
43. Rope, manilla.
44. Tassels, gold.

*(Engineering and miscellaneous.)*

45. Armco culverts.
46. Arms racks, Biggs pattern.
47. Asbestos cement sheets, Bells 'Bigsix'
48. Asbestos cement sheets, Italit.

49. Bitumastic solutio n, Briggs ' tenax. '
50. Black Japan.
51. Boxes, kit, steel sheet, for sea service.
52. Boxes, tin, for postage stamps.
53. Brushes for cleaning stamps.
54. Brushes for sweeping.
55. Buttons, brass.
56. Cables, vulcanized India rubber, single core, 600 megohm grade.
57. Cement.
58. Coal tar, for painting purposes.
59. Cooking ranges.
60. Cord, flexible, twin twisted, cotton finish.
61. Cord, flexible, twin twisted, silk finish.
62. Cord, flexible, twin twisted, workshop finish.
63. Creosote.
64. Despatch boxes.
65. Fans, electric, ceiling, alternating current.
66. Fans, electric, ceiling, direct current.
67. Fans, electric, table, alternating current.
68. Fans, electric, table, direct current.
69. Grease, cup.
70. Grease, graphite.
71. Lamps, electric, carbon filament.
72. Lamps, electric, metal filament, gasfilled type.
73. Lamps, electric, metal filament, vacuum type.
74. Lamps, electric, train lighting, gasfilled type, clear and white sprayed.
75. Lamps, electric, train lighting vacuum type.
76. Locks.
77. Meters, house service, alternating current watt hour, polyphase.
78. Meters, house service, watt hour, single phase.
79. Meters, house service, direct current, ampere hour.
80. Meters, water, Glenfield Rotary.
81. Meters, water, Siemens.
82. Oil, axle, all weather.
83. Oil, castor.
84. Oil, fuel.
85. Oil, kerosene, Chester brand.
86. Oil, kerosene, Elephant brand.
87. Oil, kerosene, Snowflake brand.
88. Oil, kerosene, Victoria brand.

89. Oil, Linseed, double boiled.
90. Oil, Linseed, raw.
91. Oil, lubricating, air compressor.
92. Oil, lubricating, crank chamber.
93. Oil, lubricating, cylinder, internal combustion.
94. Oil, lubricating, steam cylinder (saturated).
95. Oil, lubricating, steam cylinder (superheated).
96. Oil, lubricating, heavy machinery.
97. Oil, lubricating, shafting.
98. Oil, mineral, colza.
99. Oil, transformer.
100. Paints, stiff and ready mixed, of fifty five different kinds.
101. Petrol.
102. Pipes, cast iron.
103. Pipes, galvanized iron, and fittings.
104. Pumice stone.
105. Soap, soft.
106. Soap, hard
107. Solignum.
108. Specials, cast iron.
109. Tee and Angles, mild steel, of small sizes.
110. Turpentine.
111. Tyres and tubes, rubber.
112. Varnish, Copal.

29. **Comparison with the London Stores Department.**—The graph in appendix VII compares the expenditure on stores and freight incurred by the India Store Department, London, with the value of the purchases effected by the Indian Stores Department during the period commencing with the year 1922-23 and ending with the year 1925-26. It also exhibits a comparison of the numbers of contracts placed by the two organisations during the four years ending 1925-26. A comparison of the statistics for the year 1926-27 has not been included, as the figures of the London Stores Department for that year are not at present available. A more detailed comparison of the purchases effected by the two organisations during 1924-25 and 1925-26 is embodied in appendix VIII. The figures for the operations of the London Stores Department have in both these appendices been converted into Indian currency at the rate of 1s. 6d. to the rupee.

30. **Administrative Inspection Branch at Headquarters.**—The administrative Inspection Branch at the Headquarters of the Department was very fully occupied during the year in exercising general control over the inspection work of the Department, in working out improved methods of inspection, in conducting the technical scrutiny of important schemes, and in drawing up new and revising existing specifications.

31. **Specifications.**—Forty two new specifications were framed during the year, of which 24 were for special classes of stores, the more important of these being :—

1. Tanks and Stagings.
2. Built up points and crossings complete with wing rails, etc.
3. Axle boxes.
4. Tools for earthwork, etc.
5. Dragline excavators, steam operated, and suitable for coal or oil fuel.
6. Dragline excavators, crude oil engine operated.
7. Direct current electric generators and motors.
8. Alternating current electric generators.

Sixty five specifications were revised during the year.

Appendix IX contains particulars of all the specifications framed by the Department which were current at the end of the year 1926-27. These specifications, though drawn up primarily for use in connection with the operations of the Department itself, are freely distributed to other Departments, and also supplied to any manufacturers who desire to utilise them.

32. **Schedules of Requirements.**—During the year 145 new schedules of requirements were framed. In addition 6 existing schedules were revised. The more important schedules framed during the year were the following :—

1. Mechanical ash handling plant for the East Indian Railway.
2. Mechanical grain handling plant for Public Works Department, Bihar and Orissa.
3. Oil engine driven direct current electric generating sets and power station equipment for NorthWestern Railway.
4. Steel road bridges for Lloyd Barrage Works, Sukkur.
5. Steel road bridges for Sutlej Valley Project.
6. Steel railway bridges for Mysore State Railway.
7. Steel tanks and staging.
8. 2-100 K. W. oil engine driven alternating current electric generator and power station equipment for Cauvery Metur Project, Madras,
9. Plant for deep well boring for the Agricultural Department, Punjab.
10. Oil engine driven tube well pumping sets for North Western Railway.

Appendix IX-A contains particulars of all the schedules of requirements which have so far been framed by the Department and were current at the end of the year 1926-27.

33. **Technical scrutiny of schemes.**—The advice of the Stores Department was furnished during the year on twentyeight schemes for various purposes drawn up by different authorities. The work entailed the technical scrutiny of each proposal in all its features, including the checking of foundation and contract drawings, and also the examination of various points which arose after the actual placing of the orders. The aggregate value of the orders placed during the year in respect of such schemes exceeded Rs. 17,75,000.

34. **" Erection at site " orders.**—Thirty-three orders, in which the erection of the plant and equipment at site of works was an important feature, were dealt with during the year under review. The aggregate value of these orders amounted to Rs. 18,80,000. In addition several similar orders placed during the preceding year were completed.

35. **Bounties on wagons.**—The Director of Inspection continued to be the certifying authority for the payment of bounties on iron and steel railway wagons. During the year 260 such certificates were issued in respect of 3,449 wagons, resulting in the payment of Rs. 8,47,740 in bounties.

36. **Pamphlets issued.**—A pamphlet entitled " Indian Stores Department, its organisation and functions " and another entitled " Specifications for oils and lubricants " were issued during 1926-27.

37. **Work done by the Inspection Branch.**—The volume of work carried out by each of the Inspection agencies in comparison with that undertaken in the preceding years is indicated in the diagrams in appendix X. Statistics of the inspection work carried out by the Headquarters Administrative Branch were passed through and accounted for by the Provincial Inspectorates, as in the year 1925-26. It will be observed from these diagrams that the increase of business during the year was substantial, particularly in the Calcutta and Bombay Circles of Inspection.

38. **Calcutta Inspection Circle.**—The clientele of the Calcutta Circle remained substantially the same as in the previous year, but certain Departments availed themselves to a greater extent of the services of the Circle, notably, the North Western Railway, the Eastern Bengal Railway and the East Indian Railway. The number of orders for inspection amounted to 8,328, exceeding the figure of the previous year by 2,371, or an increase of 40 per cent., and the total value of the stores inspected reached the high figure of Rs. 3,41,28,881, representing an increase of about 30 per cent. over the figure of 1925-26 (Rs. 2,63,09,277). The great bulk of the work done was for the Railways, consisting in the main of rolling stock, permanent way material and bridge work, chiefly manufactured in India, and its value amounted to Rs. 2,68,39,504, that is, about 79 per cent. of the aggregate value of the work carried out by the Circle. Of the figure of Rs. 2,68,39,504, Rs. 1,34,79, 533, or almost exactly one-half, represents the value of wagons and carriage underframes. Owing, however, to the necessity for curtailing the wagon construction programme, the volume of this class of work is likely to diminish considerably during the next few years, but it is hoped that the Department will be more largely employed for the inspection of other classes of stores at Calcutta and that this work will in a measure counterbalance the reduction due to the curtailment of the wagon construction programme.

39. **Important orders inspected.**—The most important orders inspected during the year were :—

(1) One Span of 132′ girders for the Goomti Bridge, constructed by Messrs. Braithwaite & Co., for the East Indian Railway. This was a built up Deck Girder Span of the inverted Warren type.

(2) 45 Spans of 60′ plate girders, also built by Messrs. Braithwaite & Co. for the East Indian Railway. The most modern methods

were employed throughout their manufacture in order to ensure that all similar parts were interchangeable.

(3) 45 Spans of 60′ girders built by Messrs. Jessop & Co., for the East Indian Railway. These were similar in type and uniformity to the spans described above.

The work done by the Circle in connection with an order for a two and a half million gallon circular molasses tank (120′ dia. × 35′ high), placed by the Pure Cane Molasses Co. on Messrs. John King & Co., is worthy of special mention. This is believed to be the largest tank of its kind constructed in India. The Calcutta Circle was conferred with throughout in connection with the work, acting, in fact, as consulting engineers as well as Inspectors.

40. **Bombay Inspection Circle.**—The expectation entertained in 1925-26 of a substantial expansion of the operations of the Bombay Circle of Inspection during 1926-27 was fully realised. The number of orders received rose from 2,863 to 3,747, and their value from Rs. 81,70,023 to Rs. 1,01,25,880 or by 31 per cent. and 24 per cent. respectively. The value of the work actually inspected during the year amounted to Rs. 68,08,449 exceeding the figure of the previous year by Rs. 42,36,843, showing an increase of 165 per cent.

A noticeable feature is the increasing utilisation of the services of the Circle by authorities, principally Railways, for the inspection of stores purchased by themselves. The value of the orders for such stores entrusted to the Circle has risen from Rs. 1,05,837 in 1924-25 to Rs. 1,03,93,327 at the end of 1926-27.

There is every probability of a further and increasing expansion of the activities of this Circle.

The more important items of work under inspection were :—

(1) 168 spans of 65′ for the South Indian Railway, one of the largest orders in value for this class of work undertaken in this country—value Rs. 40 lakhs.

(2) The Nerbudda Bridge consisting of 6 spans of 165′ on trestles 105′ high. This is the largest bridge in point of size of span, the fabrication of which has been undertaken in India—value Rs. 13 lakhs.

(3) The Reond Nulla Bridge. A three hinged arch span and the only one of its kind built in this country—value Rs. 79,000.

As in the case of the bridge work undertaken in the Calcutta manufacturing area, the most modern methods of manufacture were adopted.

41. **Test House at Bombay.**—The nucleus of a Test House has now been definitely established at Bombay, though a separate organisation has not yet been constituted as at Calcutta, the work remaining under the control of the staff of the Bombay Inspection Circle. The following additional equipment was provided during the year :—

1. Goodbrand's cloth testing machine.
2. " single thread tester.
3. " yarn and cloth quadrant.

4. Knowle's patent yarn balance.
5. Platform scale.
6. Mason's Hygrometer.
7. Wood barrel hank stand.
8. Yarn examining machine.
9. Hygrograph.
10. Hydrometer.
11. Motor driven lea tester.
12. Micrometer eye piece.
13. Holophane day light unit.

In addition to these a Bear conditioning oven, a Lovibond's tintometer, and a fadeometer are expected shortly from abroad.

Valuable work in the testing of yarns and in experimenting with dyes has already been done, and with the additional plant now installed it is hoped that a substantial advance in testing and investigation work will be made during the next financial year.

42. **Cawnpore Inspection Circle.**—The total number of orders for inspection received by the Cawnpore Circle amounted to 1,113, as against 777 during the preceding year, or an increase of 43 per cent., and the total value of the work actually inspected aggregated Rs. 50,05,723, exceeding the figure of the previous year (Rs. 46,90,975) by about Rs. 3 lakhs. These statistics indicate a smaller proportion of increase (6·7 per cent. only) than that which occurred in the Calcutta and Bombay Circles. This is in a large measure due to the fact that the area of this Circle does not comprise any large centres of engineering manufacture, such as are situated within the jurisdiction of the Calcutta and Bombay Circles, and also to the fact that large engineering works in the Punjab are nearing completion. The Circle inspected engineering and allied materials to an aggregate value of about Rs. 30 lakhs, but these were mostly the products of foreign manufacturers or of works located outside the bounds of the Circle. Nevertheless, the work devolving on it in connection with these stores is of an important character, consisting of the inspection of modern and highly complicated plant and machinery for electrical and other projects. As examples of these may be cited the electric power plant for the Northern India Salt Revenue Department at Khewra (value Rs. 4,60,975), the electric power plant for the Jaipur State (value Rs. 3,60,407), and the electric power plant for the Military Engineering Services at Jhansi (value Rs. 1,08,173).

The Circle undertook useful work in connection with the development of the lock industry at Aligarh and the improvement of its products, which this Department now regards as comparing favourably with all, but the very best, examples of the products of foreign manufacturers.

As in the case of the Calcutta and Bombay Circles, though to a much lesser extent, doubtless for the reason already explained, namely, the lack of large engineering undertakings, the Circle was entrusted to a larger extent than hitherto by authorities, more especially the Railways, with the inspection of stores purchased by themselves.

43. **Karachi Inspection Agency.**—The value of the materials inspected by the Karachi Inspection Agency fell by a little over Rs. 2 lakhs from Rs. 41,11,538 in the preceding year to Rs. 38,97,421 during the year under review chiefly in consequence of the reduction in the volume of purchases for large engineering works in Sind. It must not, however, be assumed that this fall connotes a real contraction of the activities of that Agency. On the contrary, the organisation was more fully occupied than during the preceding year. The number of orders actually dealt with by it rose from 1,587 to 3,303, or by nearly 108 per cent., and it was more largely utilised than hitherto for the inspection of stores purchased by other authorities, the value of this class of work entrusted to it having risen from Rs. 83,476 to Rs. 1,67,739, or by over 100 per cent. As in the past, the greater part of the work of the Agency was done for the Military Engineering Services and the Lloyd Barrage and Canals Construction Scheme.

44. **Madras Inspection Branch.**—The inspection agency at Madras continued to be occupied principally with the inspection of textile goods. Its operations were not extensive, the value of the materials inspected by it during the year having amounted to Rs. 8,11,032 only, but the necessity for an organization of this character in Madras has been fully established.

45. **Details of the inspection work.**—Appendix XI shows the volume of the inspection work carried out by the Department during the past five years on behalf of the different sections of its clients.

46. **Inspection of firms and technical advice to manufacturers.**—The inspection organizations continued to undertake inspections of firms who applied for enrolment on the lists of suppliers maintained by the Department and to afford advice and instruction to manufacturers in respect of the improvement of their products, and good work was done by them in these respects.

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## CHAPTER IV.

### The Metallurgical Inspectorate, Jamshedpur.

47. **Work done.**—The work done and fees earned by the Inspectorate during the year 1926-27 are compared with the corresponding results of the previous years in the diagrams in Appendix X (vii). It will be observed that there was a very considerable expansion of the operations of the Inspectorate.

48. **Inspection.**—As in previous years the inspection and testing of the products of the Tata Iron and Steel Company constituted the bulk of the work of the Inspectorate. During the year the Company extended their manufacturing operations and undertook the production of tie-bars, keys and cotters for various railways, and the inspection of these, which was entrusted to the Inspectorate, formed an important addition to its normal work. The weight of these materials inspected during the year amounted to 15,324 tons.

A reproduction of a photograph of a portion of the Rail Inspection Bank at the Tata Iron and Steel Company's works where visual inspection and gauging of rails are carried out faces this page.



A portion of the rail inspection bank at Messrs. Tata's works, Jamshedpur, where visual inspection and gauging of rails are carried out.

Inspections at the works of the Indian Cable Company dwindled during the early part of the year, but later there was a considerable increase of this work owing to a large order being placed with the firm by the Telegraph Department.

The arrangements under which the inspection of tin bar manufactured by the Tata Iron and Steel Company for the Tinplate Company of India Limited was entrusted to the Inspectorate terminated at the end of the year 1926. The Directors of the Tinplate Company were satisfied that with the assistance of the Inspectorate their initial difficulties in connection with the supply of this material had been overcome, and considered that the inspection staff recently constituted by the Tata Iron and Steel Company would be able to ensure that the standards laid down in consultation with the Metallurgical Inspector would be adhered to.

49. **Sampling and analysis.**—The sampling and analysis of Sulphate of Ammonia for the British Sulphate of Ammonia Federation Limited proceeded uninterruptedly throughout the year, the number of samples taken being 201, representing 8,853 tons of Sulphate.

50. **Estimations carried out at the laboratory.**—Altogether 26,030 estimations of Carbon, Silicon, Manganese, Sulphur and Phosphorus were made during the year. The graph in appendix XII exhibits the increase in the number of such estimations year by year from the year 1922-23. The number of physical tests carried out during the year amounted to 64,300 approximately.

51. **Investigations.**—In addition to work of the various descriptions mentioned in the preceding paragraphs, a number of investigations were made by the Inspectorate on the failure of metals, and these necessitated journeys to different parts of India by members of the superior staff. At the invitation of the Railway Board the Metallurgical Inspector attended the conferences held in Delhi during March 1927 at which matters concerning the rolling programme of the Tata Iron and Steel Company for the next seven years, and the quality of the products of that Company were fully discussed.

52. **Bounties on steel rails, fish plates and ingots.**—The quantity of rails and fish plates certified by the Metallurgical Inspector for the payment of bounty to the Tata Iron and Steel Company during 1926-27 amounted to 155,318 tons in respect of which payments aggregating Rs. 32,61,918 were made. In addition, certificates for the payment to the Company of bounties amounting to Rs. 41½ lakhs were issued in connection with the production of steel ingots.

53. **Residential accommodation for the staff.**—The scheme for the provision of additional residential accommodation for the staff of the Metallurgical Inspectorate and the Calcutta Inspection Circle, to which reference was made in para. 56 of the Report for the year 1925-26, was undertaken and completed during the year. This provided for one officer's bungalow and four subordinates' quarters for the staff of the Metallurgical Inspectorate and two subordinates' quarters for the staff of the Calcutta Inspection Circle located at Jamshedpur. Sufficient accommodation has now been provided to meet the requirements of the entire staff of the Department stationed at Jamshedpur.

54. **Inspection and testing equipment.**—A complete list of the apparatus installed at the Inspectorate will be found in appendix XIII. A reproduction of a photograph taken of the Drop testing machine for rail tests at the works of the Tata Iron and Steel Company faces this page.

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## CHAPTER V.

### The Government Test House, Calcutta.

55. **Work done.**—The work done at and the earnings of the Test House during the past five years are shown in the diagrams in appendix X (viii).

The year under review has again been one of progress. The number of samples reported on rose from 6,080 to 7,115, an increase of 17 per cent. Of the 7,115 tests, 3,219 were physical tests, 2,313 chemical and 1,583 oil. The figure for physical tests shows that the greater part of the increase is in this section.

56. **Physical section.**—The 3,219 samples examined in this section show, as indicated above, a very substantial increase over those examined in the previous year, *viz.* 2,256.

The number of cement samples tested was 819 against 590 in the previous year. Large increases were also shown in textile testing, 420 samples against 246, and in brick testing, 343 samples against 78 in the previous year. Most of the brick tests were carried out on behalf of the Port Commissioners, Calcutta, and represented material for use in the construction of King George's Dock.

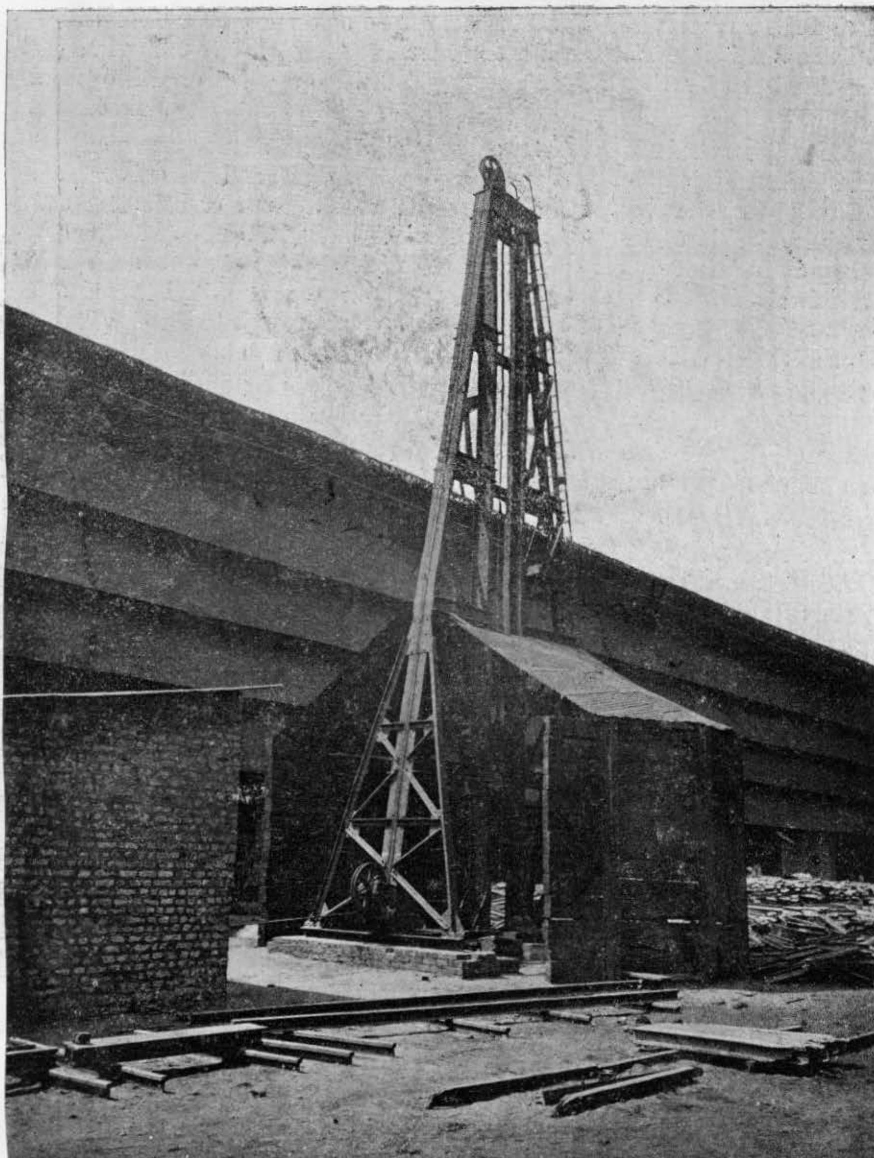
57. **Electrical laboratory.**—The electrical work carried out during the year has consisted mostly of the testing of direct current fans. The electrical laboratory, however, is in process of expansion and further apparatus is on order. In particular, it is intended to undertake the testing of alternating current fans and insulating materials. For this purpose arrangements are in progress for the installation of an alternating current generating plant together with a transformer for extra high tension testing. A potentiometer set has also been ordered and is expected to be received shortly.

During the year the installation of the 250 volt 80 ampere-hour storage battery mentioned in the last year's report was completed, and a number of instruments has also been added to the equipment of the electrical laboratory.

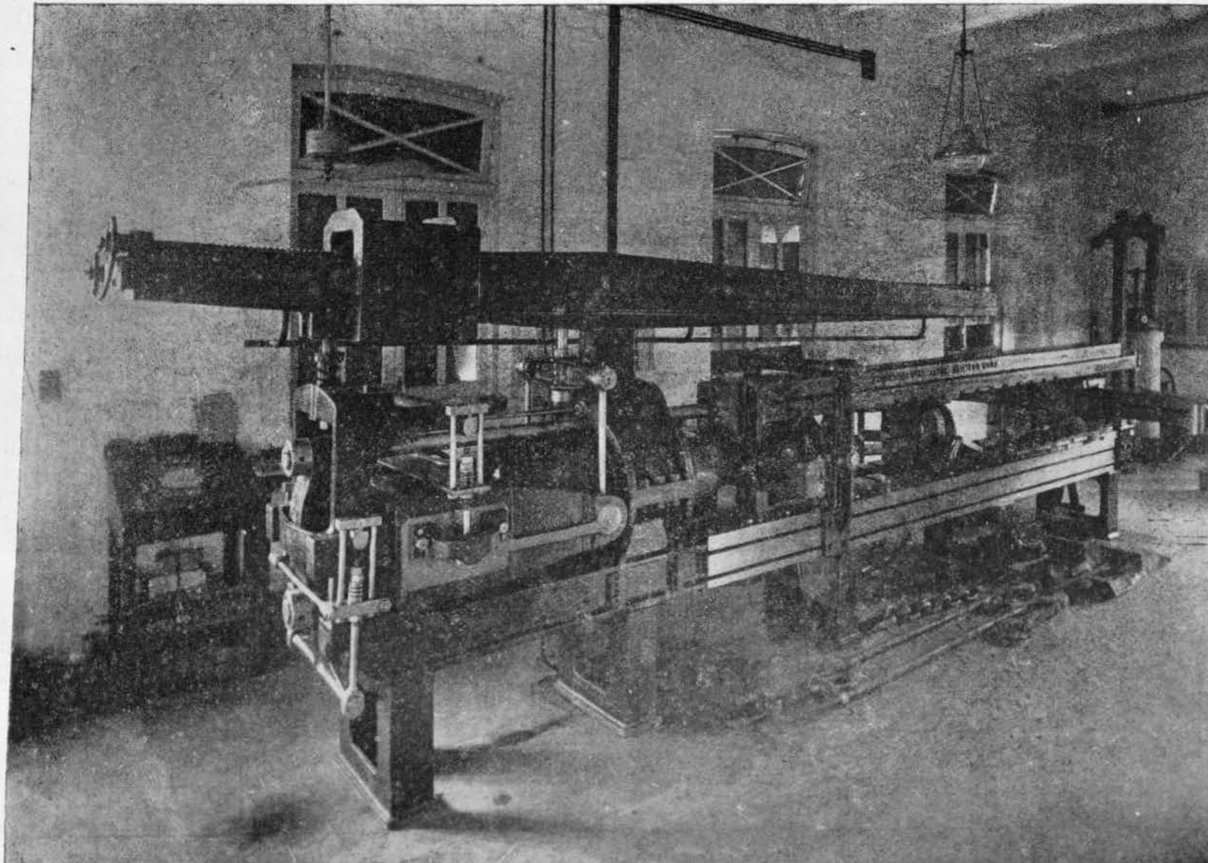
58. **Mechanical laboratory.**—In the mechanical laboratory a Vickers diamond hardness testing machine has been installed.

59. **Chemical section (general).**—The number of samples reported on during the year was 2,313 compared with 1,968 in the previous year. Paint testing showed a heavy increase from 409 to 887 samples, and coal samples increased from 418 to 538. On the other hand there was a heavy drop in the number of creosote oil samples examined. These were 20 compared with 245 in the previous year.

60. **Paints.**—Practical paint tests continued throughout the year. A new exposure fence was erected and 131 new panels were exposed. Special



The Drop Testing Machine for rail tests, Messrs. Tata's works, Jamshedpur.



GOVERNMENT TEST HOUSE, ALIPORE.

The 100 ton horizontal testing machine with earthenware pipe testing machine on right.

attention was paid to bituminous preparations, bright red paints and paints for the protection of structural steel.

During the year a scheme for the testing of standard samples of paints and similar material purchased by the Department was introduced. Over 600 such samples were received, of which it was possible to test only about half in the year under report.

61. **Oils.**—The number of oil samples reported on shows a slight decline from the previous year's figure, *viz.* 1,583 compared with 1,856. This is partly accounted for by the operation of the standard sample scheme, the object of which is to reduce the number of oils requiring examination, thus enabling a more thorough examination to be made of each sample. Apart from this, however, there is a decrease in the number of samples received from Company railways. These were 47 compared with 147 in the previous year.

The examination of standard samples was continued throughout the year.

62. **British Standard Specifications.**—A report has been submitted to the British Engineering Standards Association dealing with the existing and proposed British Standard Specifications for paint and paint materials, with special reference to Indian conditions and the interests of Indian manufacturers of these products.

63. **Cement testing.**—While on leave Mr. Brodie, the Superintendent of the Test House, visited a number of the premier British laboratories and works with the object of enquiring into the methods of cement testing usual in Great Britain, and submitted a most interesting and useful report showing the results of this enquiry, which confirmed the correctness of the methods adopted by the Test House in making such tests.

64. **Testing equipment and particulars of tests carried out.**—A complete list of the apparatus installed at the Test House will be found in appendix XIV, and the details of articles of various descriptions tested are given in appendix XV. Reproductions of photographs of the 100 ton Buckton horizontal testing machine and the cement testing laboratory at the Government Test House are included.

## CHAPTER VI.

### Encouragement of Indian industries and local purchases.

65. **Registration of firms at the Headquarters office.**—Investigations continued to be made during the year into the potentialities of Indian sources of supply, and, as one result of these enquiries an addition of 278 was made to the list of "approved contractors" to the Department and to the lists of firms maintained under the rules for the supply of articles for the public service. Applications for registration which had been received from 109 other firms were rejected for the reason that these firms did not entirely satisfy the necessary conditions for enrolment on the lists; and the names of three firms who had previously been enrolled were removed from the lists, as it was found that they could not safely be entrusted with the efficient carrying out of contracts placed with them. The following table indicates the total number of firms

registered up to the end of the year, distributed amongst the various provinces and classified according to the different descriptions of stores dealt with by them :—

| — | Bengal. | Bombay Presidency. | | Madras. | Punjab. | United Provinces. | Delhi. | Burma. | Bihar and Orissa. | Central Provinces. | Indian States. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Bombay. | Karachi. | | | | | | | | | |
| Railway materials . . | 59 | 39 | 4 | 9 | 6 | 4 | 6 | 5 | 5 | .. | 1 | 138 |
| Hardware . . . . | 78 | 54 | 14 | 12 | 12 | 23 | 12 | 9 | 3 | .. | 6 | 223 |
| Implements and tools . | 51 | 41 | 11 | 15 | 12 | 5 | 10 | 10 | 3 | 1 | 2 | 161 |
| Metals . . . . . | 86 | 48 | 12 | 13 | 11 | 9 | 11 | 10 | 4 | 1 | 1 | 206 |
| Mechanical equipment . | 147 | 126 | 12 | 29 | 19 | 12 | 17 | 25 | 3 | .. | 5 | 395 |
| Electrical equipment . . | 95 | 59 | 14 | 23 | 15 | 16 | 15 | 11 | 3 | .. | 3 | 254 |
| Oils . . . . . . | 39 | 33 | 5 | 10 | 6 | 6 | 3 | 8 | .. | .. | 4 | 114 |
| Paints, colours, enamels and varnishes. | 49 | 40 | 10 | 11 | 5 | 2 | 1 | 6 | 1 | .. | 2 | 127 |
| Chemicals (excluding medicines and drugs). | 37 | 16 | 3 | 4 | 2 | 4 | 2 | 3 | .. | .. | 1 | 72 |
| Textiles— | | | | | | | | | | | | |
| (*a*) Cotton materials . | 68 | 68 | 3 | 6 | 28 | 19 | 10 | 5 | .. | 1 | 5 | 213 |
| (*b*) Woollen materials . | 24 | 17 | 1 | 4 | 9 | 12 | 1 | 2 | 1 | .. | 4 | 75 |
| (*c*) Jute, flax and hemp materials. | 54 | 23 | 4 | 2 | 10 | 6 | .. | 3 | 1 | 1 | .. | 104 |
| (*d*) Silk . . . . | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |
| Leather goods . . | 16 | 9 | .. | 2 | 5 | 10 | .. | 3 | .. | .. | 1 | 46 |
| Structural engineering . | 41 | 16 | 3 | 6 | 2 | 4 | 3 | 7 | 2 | .. | .. | 84 |
| Miscellaneous stores . . | 154 | 94 | 19 | 23 | 37 | 24 | 22 | 17 | 3 | 6 | 7 | 406 |
| Medical, surgical and scientific stores and equipment (excluding medicines, chemicals and drugs). | 10 | 3 | .. | 1 | 1 | 2 | .. | .. | .. | .. | .. | 17 |
| Wireless stores . . . | 1 | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 3 |
| Mathematical, drawing and surveying instruments and equipment. | 8 | 8 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 18 |
| TOTAL . | 1,017 | 695 | 115 | 170 | 180 | 159 | 114 | 126 | 29 | 10 | 42 | 2,657 |
| *Deduct* overlapping figures for firms appearing against more than one item. | 581 | 372 | 64 | 102 | 65 | 43 | 57 | 66 | 21 | 3 | 14 | 1,388 |
| NET TOTAL . | 436 | 323 | 51 | 68 | 115 | 116 | 57 | 60 | 8 | 7 | 28 | 1,269 |

66. **Registration of firms at local Purchase Circles.**—In addition to the firms mentioned in the preceding paragraph, 180 firms were registered for small orders on the lists maintained by the subordinate purchasing agencies of the Department. Of these 50 are located in Calcutta, 103 in Bombay, 16 in Karachi and 11 in Madras.

67. **Advice to manufacturers.**—The Department continued to advise and instruct manufacturers in India whenever opportunity offered in the matter of the improvement of their products, and also of their organization generally. Whenever it was found that a manufacturer was able to produce an article which could be purchased in India in conformity with the Stores Rules, the fact was brought to the notice of consumers.

68. **Lists of stores indented for by Government Departments on the India Store Department, London.**—In para. 66 of the previous year's report it was pointed out that there had been a very small demand for the bi-monthly lists of stores indented for by Government Departments on the India Store Department, London. There was no improvement in the sales of these publications during 1926-27 : but, as certain industrial and commercial bodies urged either that the publication of these lists should be continued or that some other means should be adopted for keeping them informed of the nature and volume of stores demanded from abroad, it has been decided to continue the issue of the lists for the present.

69. **Scrutiny of home indents.**—Much valuable work was done during the year in connection with the scrutiny of indents placed by the consuming Departments on the India Store Department, London. The question of the treatment of indents from the various railway administrations was fully examined in consultation with the Railway Board, and a satisfactory procedure was devised which is already effecting a considerable increase in the value of purchases made in India. During the year copies of 1,228 indents on the India Store Department, London, of an estimated value of Rs. 8,81,53,278, were received for scrutiny, as compared with 1,226 indents of an estimated value of Rs. 7,86,82,867 during the year 1925-26. The Department challenged items aggregating Rs. 76,57,000 in value, as against Rs. 41,75,000 during the preceding year, with the result that purchases to the value of Rs. 6,44,000 (against Rs. 4,88,000 in 1925-26) were diverted to the Indian markets, and assurances were received from indentors that items, the present requirements in respect of which aggregate Rs. 36,36,000 in value at current rates, would, if required in future, be purchased in India, provided that the purchase could be effected in conformity with the provisions of the Stores Purchase Rules.

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## CHAPTER VII.

### Finance.

70. **Statistics of Revenue and Expenditure.**—The following statement exhibits the revenue and expenditure of the Department, year by year, from the financial year 1922-23.

## Revenue.

| | 1922-23. | 1923-24. | 1924-25. | 1925-26. | 1926-27. |
|---|---|---|---|---|---|
| | Rs. | Rs. | Rs. | Rs. | Rs. |
| Departmental charges on purchase of stores, I. S. D. Orders. | 1,55,711 | 1,37,677 | 2,91,727 | 2,51,400 | 3,38,833 |
| Do. Inspection, do. | — | — | — | 1,53,766 | 2,06,048 |
| *Other orders.* | | | | | |
| Do. Calcutta Circle of Inspection. | .. | 1,30,434 | 1,09,516 | 2,10,095 | 3,00,977 |
| Do. Bombay do. | .. | .. | 314 | 1,569 | 25,876 |
| Do. Cawnpore do. | .. | .. | 104 | 880 | 9,390 |
| Do. Karachi do. | .. | .. | 313 | 1,042 | 1,379 |
| Do. Metallurgical Inspectorate. | 1,31,045 | 2,01,979 | 2,60,971 | 3,29,793 | 4,13,139 |
| Do. Government Test House | 1,41,998 | 89,825 | 80,909 | 1,05,772 | 1,25,763 |
| Miscellaneous receipts | 568 | 9,735 | 19,612 | 16,288 | 37,687 |
| *Deduct refunds* | .. | .. | .. | .. | —308 |
| Total | 4,29,322 | 5,69,650 | 7,63,466 | 10,70,605 | 14,58,784 |

## *Expenditure (by units of Appropriation).*

| | 1922-23. | 1923-24. | 1924-25. | 1925-26. | 1926-27. |
|---|---|---|---|---|---|
| | Rs. | Rs. | Rs. | Rs. | Rs. |
| Pay of officers | 1,92,867 | 2,88,979 | 4,43,003 | 5,52,816 | 5,91,533 |
| Pay of establishment | 1,53,003 | 2,26,583 | 3,04,493 | 4,21,579 | 5,23,081 |
| Allowances, honoraria, etc. | 44,468 | 62,526 | 1,10,283 | 1,45,497 | 1,68,156 |
| Supplies and services | 1,74,476 | 2,22,279 | 68,544 | 63,459 | 59,925 |
| Contingencies | 56,290 | 71,416 | 97,359 | 1,02,350 | 1,27,639 |
| Works | .. | 50,930 | 15,790 | 2,00,000 | 91,750 |
| Grants-in-aid, contributions, etc. | .. | .. | .. | .. | 2,136 |
| Total Expenditure | 6,21,104 | 9,22,713 | 10,39,472 | 14,85,701 | 15,64,220 |
| Total Revenue | 4,29,322 | 5,69,650 | 7,63,466 | 10,70,605 | 14,58,784 |
| Deficit | 1,91,782 | 3,53,063 | 2,76,006 | 4,15,096 | 1,05,436 |

*N.B.*—The figures for the year 1926-27 are not the final figures of the year as the accounts have not yet been closed. The previous year's figures have been corrected to represent the final revenue and expenditure of the respective years.

71. **Financial position.**—A most satisfactory feature of these statistics is the fact that the growth in the revenue of the Department has exceeded that in its expenditure. Excluding from both the years 1925-26 and the year under review the capital expenditure incurred on the building scheme at Jamshedpur, to which a reference was made in the preceding year's report, the expenditure during the year 1926-27 exceeded that of the previous year by approximately Rs. 2 lakhs only, while the revenue of the year was larger than that received in the previous year by nearly Rs. 4 lakhs. As a result, there was a marked decrease in the net deficit on revenue account, which in 1926-27 stood at about Rs. 29,500 only as compared with about Rs. 2·15 lakhs in 1925-26. These results justify, and to a greater degree than was anticipated, the hope expressed in the previous year's report that the existing disparity between the revenue and expenditure of the Department would be lessened with the passage of time.

The figures of expenditure included in the accounts reproduced above are merely those relating to the charges which are debitable directly to the budget grant of the Department. They do not include a number of indirect charges, on account of pensions and the Government contribution to the provident fund accounts of those members of the staff who are on non-pensionable basis, rents of the Government buildings occupied by the Department, the cost of printing and stationery, the interest on the capital outlay and the depreciation of assets, the accounts and audit charges, the leave allowances of officers paid in England, etc.

Some considerable time must, therefore, elapse, and there must be a very large increase of the volume of business entrusted to the Department, before it can hope to be "self-supporting" in the true sense of the term.

J. S. PITKEATHLY,

*Chief Controller of Stores,*

*Indian Stores Department.*

SIMLA,

*Dated the 21st July 1927.*

## APPENDIX I.

# ORGANIZATION

OF

# The Indian Stores Department as it stood on the 31st March 1927.

(*Vide* paragraph 10 of the Report.)

### CHIEF CONTROLLER OF STORES.

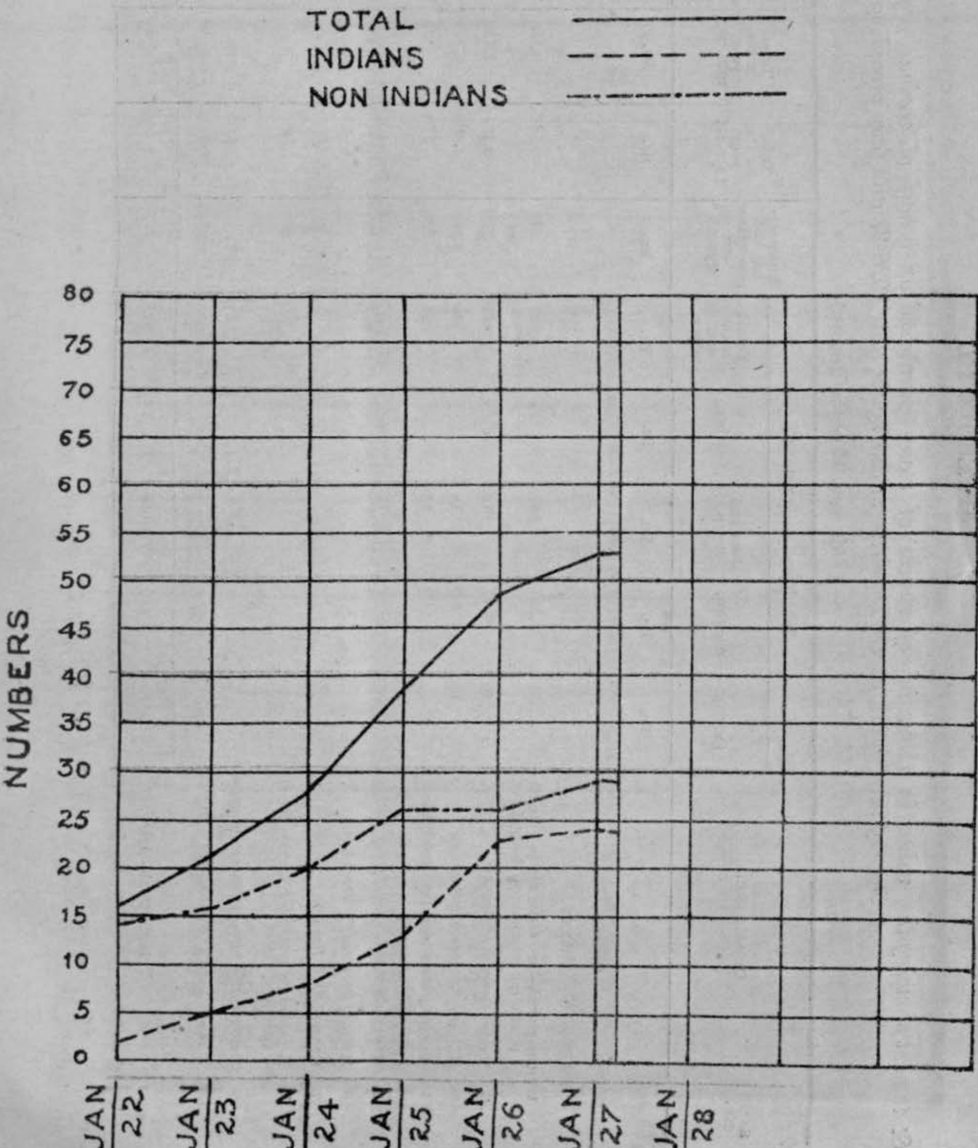
- **PURCHASE AND INTELLIGENCE.**
  - Director of Purchase and Intelligence.
    - Textiles and Leather.
      - Deputy Director of Purchase.
      - Assistant Director of Purchase.
    - Intelligence.
      - Assistant Director of Intelligence.
    - Engineering.
      - Deputy Director of Purchase.
      - Assistant Director of Purchase
    - Hardware and Miscellaneous.
      - Deputy Director of Purchase.
    - Provincial.
      - Calcutta.
        - Controller of Purchase. Assistant Controller of Purchase. Head Clerk. Stenographer. 16 Clerks. *4 Clerks.* Duftry. 6 Peons. *2 Peons.*
      - Bombay
        - Assistant Controller of Purchase. Assistant Controller of Purchase (Junior). Head Clerk. Stenographer. 10 Clerks. *2 Clerks.* Duftry. 5 Peons. *Peon.* Chowkidar.
      - Karachi.
        - Controller of Purchase. Head Clerk. Stenographer. 4 Clerks. *5 Clerks.* Duftry. 3 Peons. *Peon.* Chowikdar.
- **DIRECTION.**
  - Assistant Chief Controller.
    - Chief Superintendent. 5 Superintendents. 35 Assistants. *8 Assistants.* 66 Clerks. *13 Clerks.* 6 Stenographers. 9 Duftries. Jamadar. 29 Peons. 3 Farashes.
- **INSPECTION.**
  - Director of Inspection.
    - 2 Assistant Directors of Inspection. Head Draftsman. 4 Draftsmen. *2 Draftsmen.* 2 Tracers. Ferrotyper.
    - Provincial.
      - Calcutta Inspection Circle.
        - Controller of Inspection. Assistant Controller of Inspection. *Assistant Controller of Inspection.* 9 Inspectors. *3 Inspectors.* 10 Examiners. *4 Examiners.* Head Clerk. Stenographer. 26 Clerks. *4 Clerks.* Draftsman. Tracer. Duftry. 16 Peons. *2 Peons.* 2 Chowikdars.
      - Government Test House.
        - Superintendent, Government Test House.
          - Physicist. Assistant Engineer. 7 Physical Assistants. Foreman.
          - Head Clerk. Stenographer. Accountant. 10 Clerks. *2 Clerks.* Storekeeper. Cement Laboratory Operator. *Cement Laboratory Operator.* 4 Mistries. *Mistry.* Fitter. 10 Laboratory bearers. 11 Laboratory Khalasis. Duftry. 8 Peons. Office bearer. Chowikdar. Mali.
          - Chemist. Assistant Chemist. 15 Chemical Assistants. *Chemical Assistant.*
      - Metallurgical Inspectorate.
        - Metallurgical Inspector.
          - 2 Senior Assistant Metallurgical Inspectors. 2 Assistant Metallurgical Inspectors.
            - Physical.
              - 2 Inspectors. 6 Examiners.
            - Head Clerk. Accountant. *Stenographer.* 8 Clerks. *Clerk.* 4 Laboratory bearers. 8 Peons.
            - Chemical.
              - Chemist. 6 Chemical Assistants.
      - Madras Inspection Branch.
        - Inspector-in Charge.
          - 3 Clerks. Duftry. 2 Peons.
      - Bombay Inspection Circle.
        - Assistant Controller of Inspection. 4 Inspectors. 5 Examiners. Head Clerk. Stenographer. 15 Clerks. *2 Clerks.* *Draftsman.* Duftry. 6 Peons. *Peon.* Chowkidar.
      - Cawnpore Inspection Circle.
        - Cawnpore Circle excluding the Karachi Agency.
          - Assistant-Controller of Inspection. 3 Inspectors. 2 Examiners. Head Clerk. Stenographer. 5 Clerks. Duftry. *Duftry.* 4 Peons. *2 Peons.* Chowkidar
        - Karachi Agency.
          - Inspector-in-Charge. Inspector. 3 Examiners. Head Clerk. 5 Clerks. *5 Clerks.* *Duftry.* 2 Peons. *Peon.* *Chowkidar.*
- **LEAVE RESERVE (Technical).**
  - Assistant Controller of Purchase. 4 Inspectors of Stores. 2 Examiners of Stores. *Examiner of Stores.* 2 Chemical Assistants. Physical Assistant.

The appointments added during the year are shown in italics.

# APPENDIX II

## INDIAN STORES DEPARTMENT GAZETTED STAFF UP TO 31-3-27

*(Vide paragraph 12 of the report)*



# APPENDIX III.

*Statement showing the value (in thousands of rupees) of stores purchased on behalf of various organisations utilising the services of the Indian Stores Department during the year 1926-27 and four preceding years.*

(*Vide* para. 16 of the Report.)

| Serial No. | Organisation. | Textile and leather stores | | | | | Engineering and miscellaneous stores. | Total for the year 1926-27. | Total for the year 1925-26. | Total for the year 1924-25. | Total for the year 1923-24. | Total for the year 1922-23. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cotton. | Woollen. | Jute and hemp, etc. | Leather. | Total Textile and leather. | | | | | | |
| | | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| | CENTRAL. | | | | | | | | | | | |
| | ARMY. | | | | | | | | | | | |
| 1 | Quartermaster General in India (including mechanical transport). | 4,054 | 3,854 | 812 | 7 | 8,727 | 515 | 9,242 | 6,152 | 6,187 | 10,223 | 14,551 |
| 2 | Master General of Supply | 2,046 | 577 | 214 | 4 | 2,841 | 320 | 3,161 | 1,716 | 2,661 | 341 | 388 |
| 3 | Military Engineering Services | 18 | (a) | 19 | 3 | 40 | 4,768 | 4,808 | 3,856 | 3,231 | 1,033 | .. |
| 4 | Royal Indian Marine Dock-yard, Bombay. | .. | 9 | 15 | .. | 24 | 95 | 119 | 27 | 27 | .. | .. |
| 5 | Royal Air Force | (a) | .. | .. | (a) | (a) | 131 | 131 | .. | .. | .. | .. |
| 6 | Military Secretary's Branch | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| 7 | General Staff Branch | .. | .. | .. | .. | .. | (a) | (a) | (a) | .. | .. | .. |
| 8 | Establishment Officer, Army Head Quarters. | .. | .. | .. | .. | .. | (a) | (a) | (a) | .. | .. | .. |
| 9 | Embarkation Supply Officer, Bombay | 1 | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. |
| 10 | Duke of York's Own Skinner's Horse | .. | .. | .. | .. | .. | .. | .. | 16 | .. | .. | .. |
| | Total Central—Army | 6,119 | 4,440 | 1,060 | 14 | 11,633 | 5,829 | 17,462 | 11,768 | 12,106 | 11,597 | 14,939 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CENTRAL. | | | | | | | | | | | |
| | CIVIL. | | | | | | | | | | | |
| | *(Including Minor Administrations).* | | | | | | | | | | | |
| 11 | Government of India Secretariat and Attached Offices. | 20 | 15 | (a) | .. | 35 | 13 | 48 | 59 | 24 | 12 | .. |
| 12 | Posts and Telegraphs Department | 232 | 29 | 280 | (a) | 541 | 278 | 819 | 957 | 874 | 353 | 295 |
| 13 | Northern India Salt Revenue Department. | (a) | .. | (a) | .. | (a) | 283 | 283 | 434 | 1,109 | 44 | 1,115 |
| 14 | Customs Department . . . | 15 | 4 | 1 | .. | 20 | 1 | 21 | 10 | 25 | 3 | .. |
| 15 | Opium Department . . . | 1 | (a) | 13 | (a) | 14 | 4 | 18 | 60 | 49 | .. | .. |
| 16 | Income Tax Department . . | 1 | 2 | .. | .. | 3 | (a) | 3 | 1 | 1 | .. | .. |
| 17 | Accounts Department . . . | 1 | 1 | (a) | .. | 2 | 1 | 3 | 1 | (a) | (a) | .. |
| 18 | Currency Department . . . | .. | .. | 3 | .. | 3 | (a) | 3 | (a) | .. | .. | .. |
| 19 | His Majesty's Mints, Calcutta and Bombay. | .. | .. | .. | .. | .. | 4 | 4 | 3 | .. | .. | .. |
| 20 | Security Printing Department . | (a) | .. | .. | .. | (a) | 64 | 64 | 7 | (a) | .. | .. |
| 21 | Printing, Stationery and Stamps | 31 | .. | 31 | .. | 62 | 15 | 77 | 61 | 184 | 8 | 3 |
| 22 | Geological Survey . . . . | .. | .. | .. | .. | .. | .. | .. | (a) | (a) | .. | .. |
| 23 | Mining Department . . . | 4 | .. | (a) | .. | 4 | 31 | 35 | .. | (a) | .. | .. |
| 24 | Meteorological Department . . | (a) | (a) | .. | .. | (a) | 2 | 2 | (a) | .. | .. | .. |
| 25 | Archæological Department . . | .. | .. | .. | .. | .. | 10 | 10 | 1 | .. | .. | .. |
| 26 | Survey of India . . . . | 49 | 16 | .. | .. | 65 | (a) | 65 | 8 | 3 | 33 | 26 |
| 27 | Director General, Indian Medical Service. | 199 | 26 | .. | .. | 225 | 1 | 226 | 292 | 89 | .. | .. |
| 28 | Superintendent Viceregal Estates . | .. | .. | .. | .. | .. | 1 | 1 | .. | 6 | .. | .. |
| 29 | Public Works Department, Simla Imperial Circle. | .. | .. | .. | .. | .. | 17 | 17 | 17 | 27 | .. | .. |
| 30 | Inspector-General of Forests . . | .. | .. | .. | .. | .. | 11 | 11 | .. | .. | .. | .. |
| 31 | Forest Research Institute, Dehra Dun. | .. | .. | .. | .. | .. | 13 | 13 | 19 | 4 | (a) | .. |
| 32 | X-Ray Institute, Dehra Dun . . | .. | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. |
| | Carried over . | 553 | 93 | 328 | (a) | 974 | 749 | 1,723 | 1,930 | 2,395 | 453 | 1,439 |

## APPENDIX III—*contd.*

| Serial No. | Organisation. | Textile and leather Stores. | | | | | Engineering and miscellaneous stores. | Total for the year 1926-27. | Total for the year 1925-26. | Total for the year 1924-25. | Total for the year 1923-24. | Total for the year 1922-23. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cotton. | Woollen. | Jute and hemp, etc. | Leather. | Total Textile and leather. | | | | | | |
| | | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| | **Brought forward** . | 553 | 93 | 328 | (a) | 974 | 749 | 1,723 | 1,930 | 2,395 | 453 | 1,439 |
| | CENTRAL—*contd.* | | | | | | | | | | | |
| | CIVIL—*contd.* | | | | | | | | | | | |
| 33 | Agricultural Research Institute, Pusa. | .. | .. | .. | .. | .. | 6 | 6 | 17 | (a) | .. | .. |
| 34 | Veterinary Research Institute, Muktesar. | 1 | 3 | 2 | .. | 6 | .. | 6 | 5 | .. | .. | .. |
| 35 | Bacteriologist, Muktesar . . | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | .. |
| 36 | Dairy Expert, Bangalore . . | .. | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | .. |
| 37 | Royal Botanical Gardens . . | .. | .. | .. | .. | .. | 3 | 3 | 4 | (a) | .. | .. |
| 38 | Indian Central Cotton Committee . | .. | .. | .. | .. | .. | .. | .. | 18 | .. | .. | .. |
| 39 | North-West Frontier Province, Police Department. | 44 | 17 | .. | (a) | 61 | .. | 61 | 109 | 52 | 61 | 16 |
| 40 | North-West Frontier Province, Jail Department. | .. | .. | .. | .. | .. | .. | .. | .. | .. | (a) | .. |
| 41 | North-West Frontier Province, Public Works Department. | .. | .. | .. | .. | .. | (a) | (a) | .. | .. | .. | .. |
| 42 | Chief Commissioner, Delhi . . | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| 43 | Delhi Public Works Department . | 30 | 57 | 3 | .. | 90 | 638 | 728 | 383 | 565 | 869 | .. |
| 44 | Delhi Police . . . . . | 9 | .. | .. | .. | 9 | .. | 9 | .. | .. | .. | .. |
| 45 | Imperial Works Division, Dehra Dun | .. | .. | .. | .. | .. | 114 | 114 | 11 | .. | .. | .. |
| 46 | Chief Commissioner, Coorg . . | .. | .. | .. | .. | .. | 3 | 3 | 3 | 20 | .. | .. |
| 47 | Andamans Commission . . . | 8 | 5 | 24 | (a) | 37 | 204 | 241 | 124 | 16 | .. | .. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | Agent to the Governor-General, Central India. | .. | .. | .. | .. | .. | 5 | 5 | 1 | .. | .. | .. |
| 49 | Central India Agency, Public Works Department. | (a) | .. | .. | .. | (a) | 1 | 1 | .. | .. | .. | .. |
| 50 | Rajputana Agency . . . . | 1 | .. | (a) | .. | 1 | 7 | 8 | 9 | 21 | .. | .. |
| 51 | Baluchistan Agency . . . . | .. | .. | .. | .. | .. | 9 | 9 | 2 | (a) | .. | .. |
| 52 | Baluchistan Public Works Department. | .. | .. | .. | .. | .. | (a) | (a) | .. | .. | .. | .. |
| 53 | Persian Gulf Agency . . . . | .. | .. | .. | .. | .. | .. | .. | .. | 15 | .. | .. |
| 54 | Political Agent, Zhob, Fort Sandeman | .. | .. | .. | .. | .. | (a) | (a) | .. | .. | .. | .. |
| 55 | Political Agent, C. P. Feudatory States. | .. | .. | .. | .. | .. | .. | .. | (a) | (a) | .. | .. |
| 56 | His Britannic Majesty's Consul for Sistan, etc. | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 57 | British Envoy at the Court of Nepal | .. | .. | .. | .. | .. | (a) | (a) | (a) | .. | .. | .. |
| 58 | Political Officer in Sikkim . . | .. | .. | .. | .. | .. | 5 | 5 | .. | .. | .. | .. |
| | Adjustment on account of fractions of a thousand. | —2 | .. | 1 | .. | —1 | —1 | —2 | .. | .. | .. | .. |
| | Total Central—Civil . | 644 | 175 | 358 | (a) | 1,177 | 1,745 | 2,922 | 2,617 | 3,089 | 1,383 | 1,455 |
| | **RAILWAYS.** | | | | | | | | | | | |
| | **State Worked Railways.** | | | | | | | | | | | |
| 59 | North Western Railway. . . . | 471 | 261 | 62 | .. | 794 | 2,085 | 2,879 | 1,577 | 1,367 | 892 | 17 |
| 60 | Eastern Bengal Railway . . . | 34 | .. | .. | .. | 34 | 2 | 36 | 13 | 69 | .. | .. |
| 61 | East Indian Railway (including Oudh and Rohilkhand Railway). . . | 851 | 184 | 282 | .. | 1,317 | 921 | 2,238 | 1,617 | 2,974 | 45 | 21 |
| 62 | Great Indian Peninsula Railway . | 154 | .. | 252 | .. | 406 | 1,459 | 1,865 | 121 | 176 | .. | .. |
| 63 | Aden Railway . . . | .. | .. | (a) | .. | (a) | 5 | 5 | .. | .. | .. | .. |
| 64 | Central Indian Coal-fields Railway | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| | Adjustment on account of fractions of a thousand. | .. | —1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. |
| | Total State Worked Railways | 1,510 | 444 | 597 | .. | 2,551 | 4,472 | 7,023 | 3,328 | 4,586 | 938 | 38 |

## APPENDIX III—*contd*

| Serial No. | Organisation. | Textile and leather stores. Cotton. | Woollen. | Jute and hemp, etc. | Leather. | Total Textile and leather. | Engineering and miscellaneous stores. | Total for the year 1926-27. | Total for the year 1925-26. | Total for the year 1924-25. | Total for the year 1923-24. | Total for the year 1922-23. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| | COMPANY WORKED RAILWAYS. | | | | | | | | | | | |
| 65 | Assam Bengal Railway | 11 | (*a*) | 14 | .. | 25 | 180 | 205 | 77 | 47 | .. | .. |
| 66 | Bombay Baroda and Central India Railway. | .. | .. | .. | .. | .. | 35 | 35 | 3 | .. | .. | .. |
| 67 | South Indian Railway | .. | .. | .. | .. | .. | 74 | 74 | 1 | .. | .. | .. |
| 68 | Bengal Nagpur Railway | .. | .. | .. | .. | .. | 45 | 45 | 730 | .. | .. | .. |
| 69 | Madras and Southern Mahratta Railway. | .. | .. | .. | .. | .. | 50 | 50 | .. | .. | .. | .. |
| 70 | Bengal and North Western Railway | 33 | .. | .. | .. | 33 | .. | 33 | .. | .. | .. | .. |
| 71 | Sind Railway | .. | .. | .. | (*a*) | (*a*) | .. | (*a*) | .. | .. | .. | .. |
| 72 | H. E. H. the Nizam's Guaranteed State Railways. | 17 | 2 | .. | .. | 19 | 14 | 33 | 1 | 10 | .. | .. |
| 73 | Burma Railways | 35 | .. | .. | .. | 35 | 4 | 39 | 67 | .. | .. | .. |
| | Total Company Worked Railways | 96 | 2 | 14 | (*a*) | 112 | 402 | 514 | 879 | 57 | .. | .. |
| | INDIAN STATE WORKED RAILWAYS. | | | | | | | | | | | |
| 74 | Mysore Railway | .. | .. | .. | .. | .. | 5 | 5 | .. | .. | .. | .. |
| 75 | Jodhpur Railway | .. | .. | .. | .. | .. | (*a*) | (*a*) | .. | .. | .. | .. |
| | Total Indian State Worked Railways | .. | .. | .. | .. | .. | 5 | 5 | .. | .. | .. | .. |
| | TOTAL RAILWAYS | 1,606 | 446 | 611 | (*a*) | 2,663 | 4,879 | 7,542 | 4,207 | 4,643 | 938 | 38 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PROVINCIAL.** | | | | | | | | | | | |
| | MADRAS. | | | | | | | | | | | |
| 76 | Public Works Department | 1 | .. | 1 | .. | 2 | 938 | 940 | 9 | (a) | .. | (a) |
| 77 | Agricultural Department | .. | .. | .. | .. | .. | (a) | (a) | .. | .. | .. | .. |
| 78 | Forest Department | 1 | .. | .. | .. | 1 | 1 | 2 | .. | .. | .. | .. |
| 79 | Police Department | (a) | .. | .. | .. | (a) | 1 | 1 | (a) | .. | .. | .. |
| 80 | Jail Department | .. | (a) | .. | .. | (a) | .. | (a) | 1 | .. | .. | .. |
| 81 | Printing and Stationery Department | 2 | .. | .. | .. | 2 | (a) | 2 | 2 | .. | .. | —4 |
| 82 | Education Department | .. | .. | .. | .. | .. | (a) | (a) | (a) | .. | .. | .. |
| 83 | Medical Department | 1 | .. | .. | .. | 1 | .. | 1 | (a) | .. | .. | .. |
| 84 | Revenue Department | .. | .. | (a) | .. | (a) | .. | (a) | .. | .. | .. | .. |
| | Total Madras | 5 | (a) | 1 | .. | 6 | 940 | 946 | 12 | (a) | .. | —4 |
| | BOMBAY. | | | | | | | | | | | |
| 85 | Public Works Department (Lloyd Barrage Project). | 36 | 1 | 13 | 1 | 51 | 3,260 | 3,311 | 3,777 | 2,630 | 658 | .. |
| 86 | Public Works Department | 8 | .. | 1 | .. | 9 | 772 | 781 | 165 | 111 | .. | .. |
| 87 | Agricultural Department | .. | .. | .. | .. | .. | 3 | 3 | 13 | .. | .. | .. |
| 88 | Forest Department | .. | .. | .. | .. | .. | 33 | 33 | 32 | .. | .. | .. |
| 89 | Police Department | 16 | 16 | .. | 13 | 45 | .. | 45 | 61 | 22 | 21 | .. |
| 90 | Jail Department | 107 | 5 | .. | .. | 112 | 1 | 113 | 166 | 107 | .. | .. |
| 91 | Printing and Stationery Department | (a) | .. | .. | .. | (a) | 10 | 10 | 19 | 9 | 4 | .. |
| 92 | Development Department | .. | .. | .. | .. | .. | .. | .. | (a) | .. | 77 | .. |
| 93 | Medical Department | .. | .. | .. | .. | .. | 1 | 1 | (a) | 2 | .. | .. |
| 94 | Sanitary Department | (a) | .. | .. | .. | (a) | 6 | 6 | 16 | .. | .. | .. |
| 95 | Revenue Department | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| 96 | Salt and Excise Department | 1 | 1 | .. | 1 | 3 | (a) | 3 | .. | .. | .. | .. |
| 97 | Judicial Department | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 98 | Political Department | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| | Adjustment on account of fractions of a thousand. | —1 | .. | .. | .. | —1 | 1 | .. | .. | .. | .. | .. |
| | Total Bombay | 167 | 23 | 14 | 15 | 219 | 4,087 | 4,306 | 4,251 | 2,881 | 760 | .. |

## APPENDIX III—*contd.*

| Serial No. | Organisation. | Textile and leather stores. Cotton. | Woollen. | Jute and hemp, etc. | Leather. | Total Textile and leather. | Engineering and miscellaneous stores. | Total for the year 1926-27. | Total for the year 1925-26. | Total for the year 1924-25. | Total for the year 1923-24. | Total for the year 1922-23. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| | PROVINCIAL—*contd.* | | | | | | | | | | | |
| | BENGAL. | | | | | | | | | | | |
| 99 | Public Works Department | .. | .. | .. | .. | .. | 23 | 23 | 1 | .. | (*a*) | .. |
| 100 | Forest Department | .. | .. | .. | .. | .. | 11 | 11 | 1 | (*a*) | .. | .. |
| 101 | Police Department | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. | (*a*) | (*a*) |
| 102 | Jail Department | .. | .. | .. | .. | .. | 52 | 52 | 16 | (*a*) | .. | .. |
| 103 | Education Department | .. | .. | .. | .. | .. | 1 | 1 | 6 | 2 | .. | .. |
| 104 | Sanitary Department | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. |
| 105 | Revenue Department | (*a*) | .. | (*a*) | .. | (*a*) | (*a*) | (*a*) | .. | (*a*) | .. | .. |
| 106 | Excise Department | .. | .. | .. | .. | .. | (*a*) | (*a*) | .. | .. | .. | .. |
| 107 | Judicial Department | .. | .. | .. | .. | .. | (*a*) | (*a*) | (*a*) | .. | .. | .. |
| 108 | Superintendent Governor's Estates | .. | .. | .. | .. | .. | 2 | 2 | 1 | .. | .. | .. |
| 109 | Military Secretary to His Excellency the Governor. | .. | .. | .. | .. | .. | .. | .. | (*a*) | .. | .. | .. |
| 110 | Cinchona Cultivation | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. |
| | Total Bengal | (*a*) | .. | (*a*) | .. | (*a*) | 92 | 92 | 26 | 2 | (*a*) | (*a*) |
| | UNITED PROVINCES. | | | | | | | | | | | |
| 111 | Public Works Department | .. | .. | .. | .. | .. | 483 | 483 | 60 | .. | .. | .. |
| 112 | Forest Department | .. | .. | .. | .. | .. | (*a*) | (*a*) | .. | .. | .. | .. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 113 | Police Department | .. | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. |
| 114 | Printing Department | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 115 | Medical Department | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 116 | Revenue Department | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 117 | Judicial Department | .. | .. | .. | .. | .. | .. | .. | .. | .. | (a) | .. |
| | Total United Provinces | .. | .. | .. | .. | .. | 483 | 483 | 60 | (a) | (a) | .. |
| | PUNJAB. | | | | | | | | | | | |
| 118 | Public Works Department (including Sutlej Valley Project). | 3 | (a) | 17 | (a) | 20 | 2,775 | 2,795 | 1,728 | 1,956 | 1,371 | 41 |
| 119 | Public Works Department, Hydro-Electric Branch. | .. | .. | .. | .. | .. | 907 | 907 | 58 | .. | .. | .. |
| 120 | Agricultural Department | 3 | .. | 2 | .. | 5 | 83 | 88 | 21 | 33 | .. | .. |
| 121 | Forest Department | .. | .. | .. | .. | .. | 21 | 21 | .. | .. | .. | .. |
| 122 | Police Department | 39 | .. | .. | (a) | 39 | (a) | 39 | 47 | 199 | .. | .. |
| 123 | Jail Department | 165 | 169 | 7 | 2 | 343 | 11 | 354 | 212 | 24 | .. | .. |
| 124 | Printing Department | .. | .. | (a) | .. | (a) | .. | (a) | .. | 14 | .. | .. |
| 125 | Education Department | (a) | .. | (a) | .. | (a) | .. | (a) | 3 | (a) | .. | .. |
| 126 | Industries Department | .. | .. | .. | .. | .. | 127 | 127 | 20 | 14 | 49 | .. |
| 127 | Development Department | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. |
| 128 | Sanitary Department | .. | .. | (a) | .. | (a) | (a) | (a) | (a) | 22 | .. | .. |
| 129 | Finance Department | .. | .. | .. | .. | .. | .. | .. | 22 | .. | .. | .. |
| 130 | Revenue Department | .. | .. | (a) | .. | (a) | .. | (a) | (a) | .. | .. | .. |
| 131 | Judicial Department | .. | .. | .. | .. | .. | 1 | 1 | (a) | .. | .. | .. |
| 132 | Registration Department | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 133 | Unclassified items | 14 | 4 | .. | .. | 18 | .. | 18 | .. | .. | .. | .. |
| | Adjustment on account of fractions of a thousand. | .. | .. | 1 | .. | 1 | —1 | .. | .. | .. | .. | .. |
| | Total Punjab | 224 | 173 | 27 | 2 | 426 | 3,925 | 4,351 | 2,111 | 2,262 | 1.420 | 41 |

# APPENDIX III—*contd.*

| Serial No. | Organisation. | Textile and leather stores. Cotton. | Woollen. | Jute and hemp, etc. | Leather. | Total Textile and leather. | Engineering and miscellaneous stores. | Total for the year 1926-27. | Total for the year 1925-26. | Total for the year 1924-25. | Total for the year 1923-24. | Total for the year 1922-23. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| | PROVINCIAL—*contd.* | | | | | | | | | | | |
| | BIHAR AND ORISSA. | | | | | | | | | | | |
| 134 | Public Works Department | .. | .. | (*a*) | .. | (*a*) | 37 | 37 | 2 | .. | (*a*) | (*a*) |
| 135 | Agricultural Department | .. | .. | .. | .. | .. | (*a*) | (*a*) | .. | .. | .. | .. |
| 136 | Police Department | .. | .. | .. | .. | .. | (*a*) | (*a*) | 3 | .. | .. | .. |
| 137 | Jail Department | (*a*) | 5 | 4 | .. | 9 | .. | 9 | 76 | 421 | 12 | .. |
| 138 | Printing Department | .. | .. | 2 | .. | 2 | .. | 2 | 3 | 6 | 2 | .. |
| 139 | Industries Department | .. | .. | .. | .. | .. | 10 | 10 | .. | .. | .. | .. |
| 140 | Commerce Department | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 |
| 141 | Medical Department | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| 142 | Veterinary Department | .. | .. | .. | .. | .. | (*a*) | (*a*) | .. | .. | .. | .. |
| | Adjustment on account of fractions of a thousand. | .. | 1 | .. | .. | 1 | 1 | 2 | .. | .. | .. | .. |
| | Total Bihar and Orissa | (*a*) | 6 | 6 | .. | 12 | 48 | 60 | 85 | 427 | 14 | 2 |
| | BURMA. | | | | | | | | | | | |
| 143 | Public Works Department | .. | .. | .. | .. | .. | 11 | 11 | .. | 9 | .. | .. |
| 144 | Police Department | 21 | .. | .. | .. | 21 | .. | 21 | 361 | 195 | .. | .. |
| 145 | Jail Department | .. | .. | 4 | .. | 4 | .. | 4 | 5 | 4 | 3 | 4 |
| 146 | Printing Department | 4 | .. | 1 | .. | 5 | 1 | 6 | 8 | 2 | .. | .. |
| | Total Burma | 25 | .. | 5 | .. | 30 | 12 | 42 | 374 | 210 | 3 | 4 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Central Provinces.** | | | | | | | | | | | |
| 147 | Public Works Department . . | .. | .. | .. | .. | .. | 732 | 732 | 199 | (a) | .. | (a) |
| 148 | Forest Department . . . | .. | .. | .. | .. | .. | (a) | (a) | (a) | .. | .. | .. |
| 149 | Jail Department . . . . | 3 | .. | 1 | .. | 4 | .. | 4 | (a) | 2 | .. | .. |
| 150 | Industries Department . . . | (a) | .. | (a) | .. | (a) | 4 | 4 | .. | .. | .. | .. |
| 151 | Medical Department . . . | .. | .. | (a) | .. | (a) | (a) | (a) | (a) | (a) | .. | .. |
| 152 | Sanitary Department . . . | .. | .. | .. | .. | .. | (a) | (a) | .. | .. | .. | .. |
| 153 | Revenue Department . . . | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. | .. | .. |
| 154 | Excise Department . . . | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 155 | Judicial Department . . . | .. | .. | .. | .. | .. | (a) | (a) | (a) | .. | .. | .. |
| | Adjustment on account of fractions of a thousand. | 1 | .. | .. | .. | 1 | 1 | 2 | .. | .. | .. | .. |
| | Total Central Provinces . | 4 | .. | 1 | .. | 5 | 738 | 743 | 200 | 2 | .. | (a) |
| | **Assam.** | | | | | | | | | | | |
| 156 | Public Works Department . . | 1 | .. | 2 | .. | 3 | 5 | 8 | 6 | .. | .. | .. |
| 157 | Forest Department . . . | .. | .. | 1 | .. | 1 | (a) | 1 | (a) | (a) | .. | .. |
| 158 | Police Department . . . | 39 | 30 | .. | .. | 69 | 1 | 70 | 81 | .. | .. | .. |
| 159 | Jail Department . . . . | 16 | 8 | .. | .. | 24 | (a) | 24 | 2 | .. | .. | .. |
| 160 | Printing Department . . . | .. | .. | .. | .. | .. | 6 | 6 | 4 | .. | .. | .. |
| 161 | Education Department . . . | .. | .. | .. | .. | .. | .. | .. | .. | (a) | .. | (a) |
| 162 | Medical Department . . . | .. | .. | (a) | .. | (a) | (a) | (a) | .. | .. | .. | .. |
| 163 | Revenue Department . . . | (a) | .. | .. | .. | (a) | (a) | (a) | (a) | .. | .. | .. |
| 164 | Political Department . . . | .. | .. | 1 | .. | 1 | (a) | 1 | 1 | .. | .. | .. |
| | Adjustment on account of fractions of a thousand. | —1 | .. | .. | .. | —1 | 1 | .. | .. | .. | .. | .. |
| | Total Assam . | 55 | 38 | 4 | .. | 97 | 13 | 110 | 94 | (a) | .. | (a) |
| | Total Provincial . | 480 | 240 | 58 | 17 | 795 | 10,338 | 11,133 | 7,213 | 5,784 | 2,197 | 43 |

## APPENDIX III—*concld.*

| Serial No. | Organisation. | Textile and leather stores. | | | | | Engineering and miscellaneous stores. | Total for the year 1926-27. | Total for the year 1925-26. | Total for the year 1924-25. | Total for the year 1923-24. | Total for the year 1922-23. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cotton. | Woollen. | Jute and hemp, etc. | Leather. | Total Textile and leather. | | | | | | |
| | | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| | INDIAN STATES. | | | | | | | | | | | |
| 165 | Jammu and Kashmir | 16 | .. | .. | .. | 16 | .. | 16 | 21 | 20 | .. | .. |
| 166 | Jaipur | .. | .. | .. | .. | .. | 74 | 74 | 726 | 55 | .. | .. |
| 167 | Mysore | .. | .. | .. | .. | .. | 4 | 4 | 18 | .. | .. | .. |
| 168 | Indore | .. | .. | .. | .. | .. | .. | .. | 3 | .. | .. | .. |
| 169 | Rajkot | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. |
| 170 | Balapur | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| | Adjustment on account of fractions of a thousand. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. |
| | Total Indian States | 16 | .. | .. | .. | 16 | 79 | 95 | 771 | 75 | .. | .. |
| | PUBLIC BODIES. | | | | | | | | | | | |
| 171 | City Board, Mussoorie | 1 | .. | .. | .. | 1 | 693 | 694 | 42 | 4 | .. | .. |
| 172 | City Board, Dehra Dun | .. | .. | .. | .. | .. | 4 | 4 | .. | 1 | .. | .. |
| 173 | Municipal Committee, Bannu | .. | .. | .. | .. | .. | (a) | (a) | 25 | 199 | .. | .. |
| 174 | Municipal Committee, Simla | .. | .. | .. | .. | .. | 10 | 10 | 5 | .. | .. | .. |
| 175 | District Board, Muzaffarnagar | .. | .. | .. | .. | .. | (a) | (a) | (a) | .. | .. | .. |
| 176 | Municipal Committee, Jorhat | .. | .. | .. | .. | .. | (a) | (a) | .. | .. | .. | .. |
| 177 | Municipal Committee, Delhi | 2 | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | .. |
| 178 | Port Commissioners, Calcutta | .. | .. | .. | .. | .. | 19 | 19 | (a) | .. | .. | .. |
| 179 | Port Trust, Madras | .. | .. | .. | .. | .. | (a) | (a) | .. | .. | .. | .. |
| 180 | N. W. F. P. Frontier Constabulary | .. | .. | .. | .. | .. | .. | .. | 7 | 3 | .. | .. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 181 | Trustee of English Church and Cemetery, Broach. | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. | .. |
| 182 | Fire Brigade, Peshawar . . . | .. | .. | .. | .. | .. | .. | .. | .. | (a) | .. | .. |
| 183 | Red Cross . . . . . . | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| | Adjustment on account of fractions of a thousand. | —1 | .. | .. | .. | —1 | .. | —1 | .. | .. | .. | .. |
| | Total Public Bodies . | 2 | .. | .. | .. | 2 | 726 | 728 | 79 | 208 | .. | .. |
| | COLONIES. | | | | | | | | | | | |
| 184 | South African Government . . | .. | .. | .. | .. | .. | .. | .. | .. | (a) | 605 | .. |
| | Total Colonies . | .. | .. | .. | .. | .. | .. | .. | .. | (a) | 605 | .. |
| | Adjustment on account of fractions of a thousand. | .. | .. | .. | .. | .. | .. | .. | 13 | 6 | 4 | 3 |
| | GRAND TOTAL . | 8,867 | 5,301 | 2,087 | 31 | 16,286 | 23,596 | 39,882 | 26,668 | 25,911 | 16,724 | 16,478 |
| | ABSTRACT. | | | | | | | | | | | |
| | Total Central—Army . . . | 6,119 | 4,440 | 1,060 | 14 | 11,633 | 5,829 | 17,462 | 11,768 | 12,106 | 11,597 | 14,939 |
| | Total Central—Civil . . . | 644 | 175 | 358 | (a) | 1,177 | 1,745 | 2,922 | 2,617 | 3,089 | 1,383 | 38 |
| | Total Railways . . . . . | 1,606 | 446 | 611 | (a) | 2,663 | 4,879 | 7,542 | 4,207 | 4,643 | 938 | 43 |
| | Total Provincial . . . . . | 480 | 240 | 58 | 17 | 795 | 10,338 | 11,133 | 7,213 | 5,784 | 2,197 | .. |
| | Total Indian States . . . | 16 | .. | .. | .. | 16 | 79 | 95 | 771 | 75 | .. | .. |
| | Total Public Bodies . . . | 2 | .. | .. | .. | 2 | 726 | 728 | 79 | 208 | .. | .. |
| | Total Colonies . . . . . | .. | .. | .. | .. | .. | .. | .. | .. | (a) | 605 | .. |
| | Adjustment on account of fractions of a thousand. | .. | .. | .. | .. | .. | .. | .. | 13 | 6 | 4 | 3 |
| | GRAND TOTAL . | 8,867 | 5,301 | 2,087 | 31 | 16,286 | 23,596 | 39,882 | 26,668 | 25,911 | 16,724 | 16,478 |

(a) Items below Rs 500.

# APPENDIX IV.

*Statement showing the value of the various classes of purchases (indigenous and imported separately) made during the year 1926-27 as compared with previous years.*

(*Vide* paragraph 21 of the Report.)

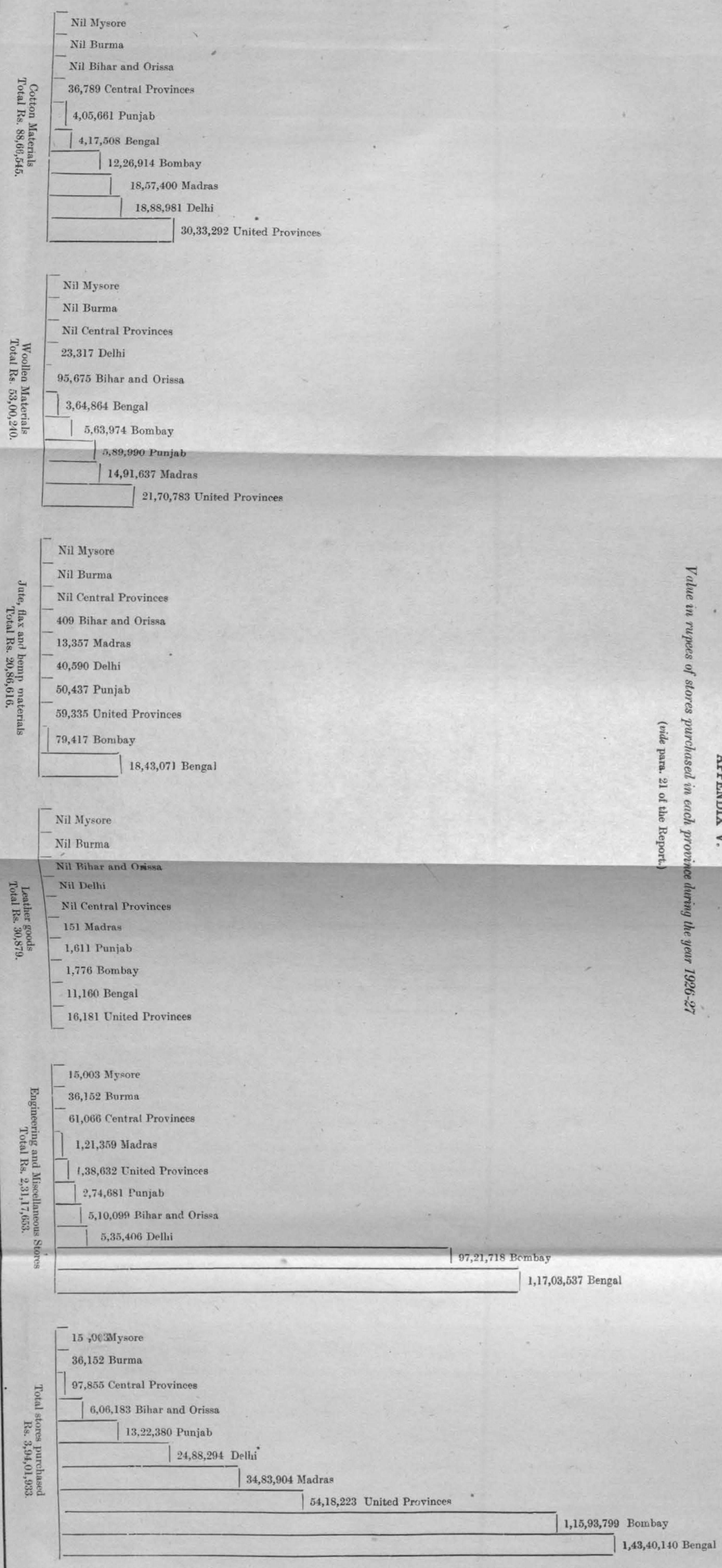
| | 1926-27. | | 1925-26. | | 1924-25. | | 1923-24. | | 1922-23. | |
|---|---|---|---|---|---|---|---|---|---|---|
| I.—TEXTILES AND LEATHER. | Rs. | | Rs. | | Rs. | | Rs. | | Rs. | |
| (*a*) Stores purchased in the Indian market— | | | | | | | | | | |
| (i) *Cotton*— | | | | | | | | | | |
| Indigenous . | 85,89,868 | (96·9%) | 57,16,336 | (97·3%) | 73,08,207 | (97·4%) | 47,09,424 | (98·6%) | 66,91,242 | (97·9%) |
| Imported . . | 2,76,677 | ( 3·1%) | 1,55,264 | ( 2·7%) | 1,93,997 | ( 2·6%) | 64,684 | ( 1·4%) | 1,45,827 | ( 2·1%) |
| (ii) *Woollen*— | | | | | | | | | | |
| Indigenous . | 51,68,861 | (97·5%) | 39,49,537 | (98·8%) | 41,35,362 | (98·7%) | 41,38,441 | (78·3%) | 40,48,603 | (81·7%) |
| Imported . . | 1,31,379 | ( 2·5%) | 46,419 | ( 1·2%) | 54,972 | ( 1·3%) | 11,49,717 | (21·7%) | 9,09,676 | (18·3%) |
| (iii) *Jute, hemp, etc.*— | | | | | | | | | | |
| Indigenous . | 19,75,785 | (94·7%) | 19,11,724 | (96%) | 15,75,548 | (97·1%) | 14,08,901 | (98%) | 39,55,785 | (99·2%) |
| Imported . . . | 1,10,831 | ( 5·3%) | 80,568 | (4%) | 46,330 | ( 2·9%) | 28,953 | (2%) | 30,868 | ( ·8%) |
| (iv) *Leather*— | | | | | | | | | | |
| Indigenous . | 19,370 | (62·7%) | 20,826 | (96·1%) | 12,034 | (96%) | .... | | .... | |
| Imported . . | 11,509 | (37·3%) | 842 | (3·9%) | 503 | (4%) | .... | | .... | |

| | | | | | |
|---|---|---|---|---|---|
| (*b*) Imported stores purchased through the Director General of Stores. | .... | .... | .... | .... | 2,48,062 |
| Total Indigenous . . | 1,57,53,884 (96·7%) | 1,15,98,423 (97·6%) | 1,30,31,151 (97·8%) | 1,02,56,766 (89·2%) | 1,46,95,630 (91·7%) |
| Total Imported . . . | 5,30,396 ( 3·3%) | 2,83,093 ( 2·4%) | 2,95,802 ( 2·2%) | 12,43,354 (10·8%) | 13,34,433 ( 8·3%) |
| Total . | 1,62,84,280 | 1,18,81,516 | 1,33,26,953 | 1,15,00,120 | 1,60,30,063 |
| (*c*) Stores purchased from Government Departments. | 2,013 | .... | .... | 2,08,625 | 4,48,242 |
| Total Textiles and leather . | 1,62,86,293 | 1,18 81,516 | 1,33,26,953 | 1,17,08,745 | 1,64,78,305 |
| II.—ENGINEERING AND MISCELLANEOUS STORES. | | | | | |
| (*a*) Stores purchased in the Indian market. | 2,31,17,653 | 1,47,03,617 | 1,25,32,145 | 48,89,196 | .... |
| (*b*) Stores purchased direct from outside India. | 4,36,101 | .... | .... | 29,232 | .... |
| (*c*) Stores purchased from Government Departments. | 42,198 | 82,800 | 52,043 | 97,228 | .... |
| Total Engineering and miscellaneous stores. | 2,35,95,952 | 1,47,86,417 | 1,25,84,188 | 50,15,656 | .... |
| GRAND TOTAL . | 3,98,82,245 | 2,66,67,933 | 2,59,11,141 | 1,67,24,401 | 1,64,78,305 |

# APPENDIX V.

*Value in rupees of stores purchased in each province during the year 1926-27*

(*vide* para. 21 of the Report.)



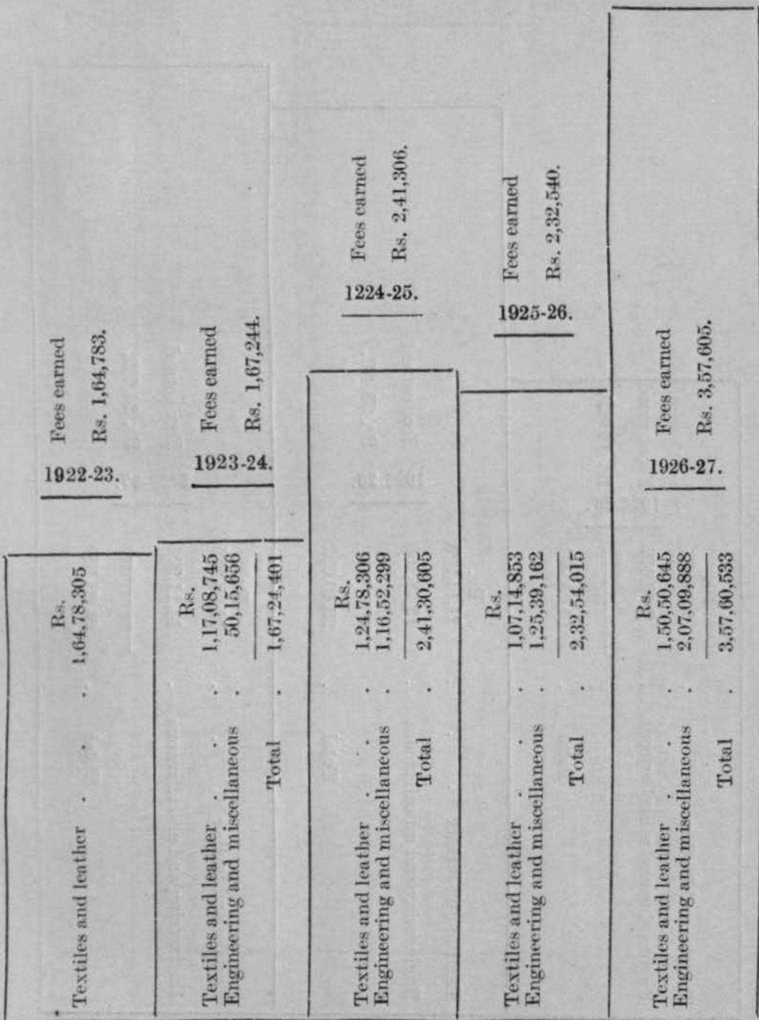
# APPENDIX VI.

## Value of Stores Purchased.

### (*i*) HEAD QUARTERS.

(*Vide* paragraph 27 of the Report).

NOTE.—The diagrams represent the fees earned and not those actually adjusted during the year.

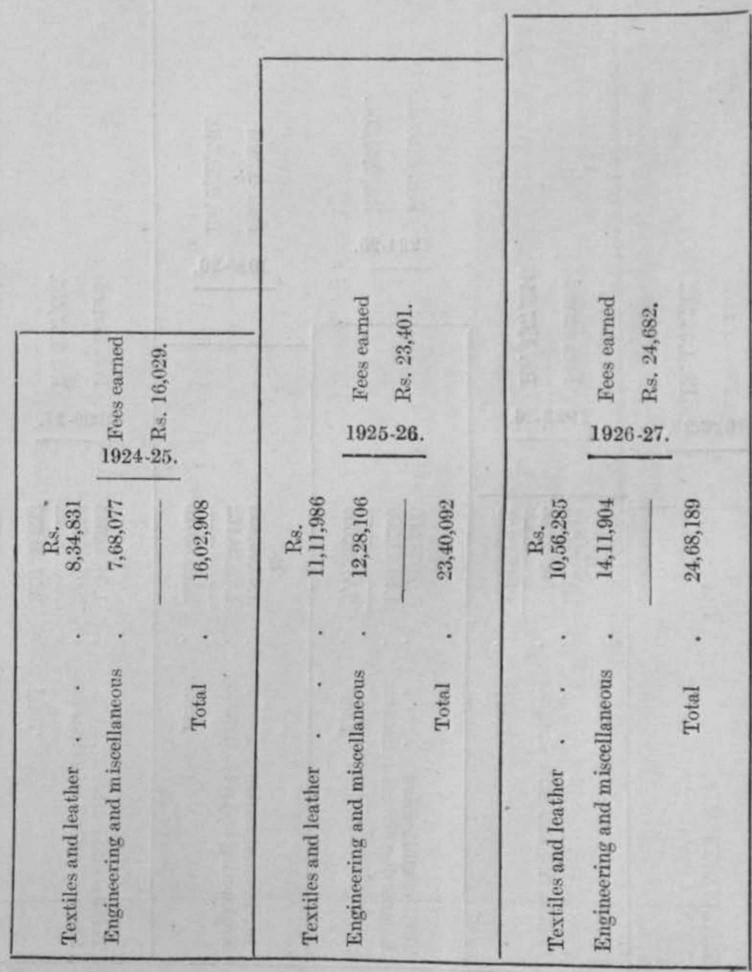


## (*ii*) Calcutta Purchase Circle.

(*Opened in May 1924*).

(*Vide* paragraph 27 of the Report).

Note.—The diagrams represent the fees earned and not those actually adjusted during the year.

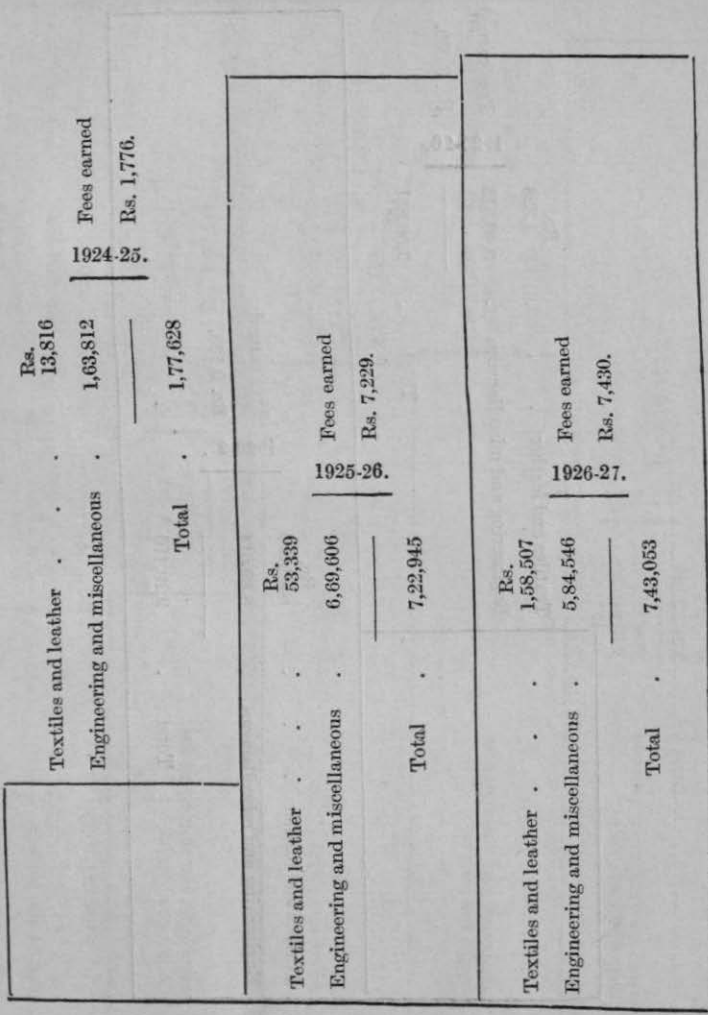


## (*iii*) BOMBAY PURCHASE CIRCLE.

(*Opened in September 1924.*)

(*Vide* paragraph 27 of the Report.

NOTE.—The diagrams represent the fees earned and not those actually adjusted during the year,



## (*iv*) KARACHI PURCHASE AGENCY.

(*Opened in September 1925.*)

(*Vide* paragraph 27 of the Report.)

NOTE.—The diagrams represent the fees earned and not those actually adjusted during the year.

**1925-26.** Fees earned Rs. 3,509.

| | Rs. |
|---|---|
| Textiles and leather . . . | 1,338 |
| Engineering and miscellaneous . | 3,49,543 |
| Total . | 3,50,881 |

**1926-27.** Fees earned Rs. 9,105.

| | Rs. |
|---|---|
| Textiles and leather . . . | 20,856 |
| Engineering and miscellaneous . | 8,89,614 |
| Total . | 9,10,470 |

## (v) Abstract.

(*Vide* paragraphs 18 and 27 of the Report.)

Note.—The diagrams represent the fees earned and not those actually adjusted during the year.

| Year | Item | Rs. | Fees earned |
|---|---|---|---|
| 1922-23. | Textiles and leather . . . . | 1,64,78,305 | Rs. 1,64,783. |
| 1923-24. | Textiles and leather . . . . | 1,17,08,745 | Rs. 1,67,244. |
| | Engineering and miscellaneous . . | 50,15,656 | |
| | Total . . | 1,67,24,401 | |
| 1924-25. | Textiles and leather . . . . . . . | 1,33,26,953 | Rs. 2,59,111. |
| | Engineering and miscellaneous . . . . . . | 1,25,84,188 | |
| | Total . | 2,59,11,141 | |
| 1925-26. | Textiles and leather . . . . . . . | 1,18,81,516 | Rs. 2,66,679. |
| | Engineering and miscellaneous . . . . . . | 1,47,86,417 | |
| | Total . | 2,66,67,933 | |
| 1926-27. | Textiles and leather . . . | 1,62,86,293 | Rs. 3,98,822. |
| | Engineering and miscellaneous . | 2,35,95,952 | |
| | Total . | 3,98,82,245 | |

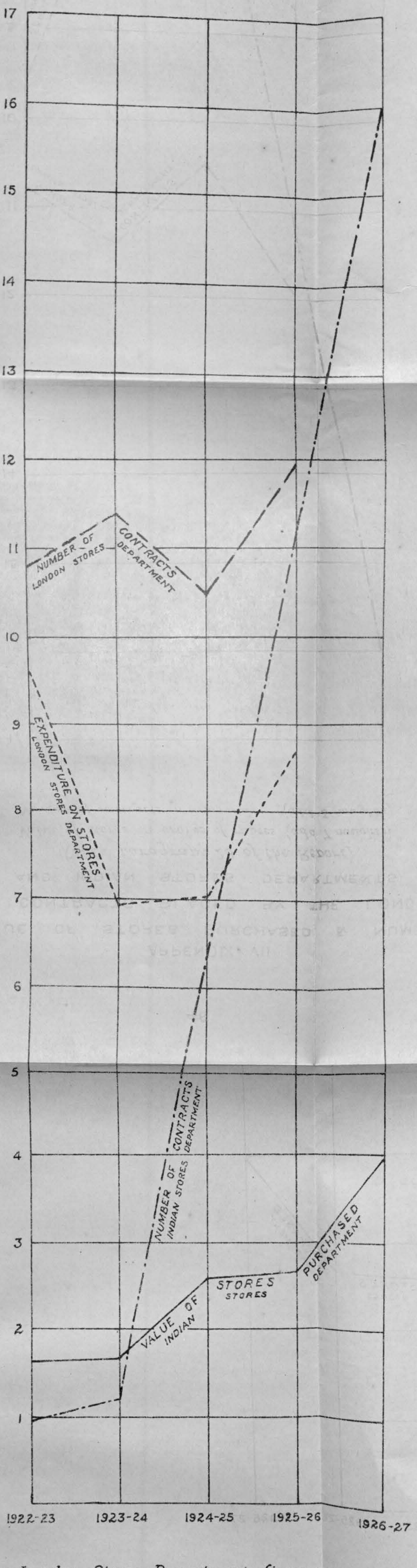
# APPENDIX VII

## VALUE OF STORES PURCHASED & NUMBER OF CONTRACTS PLACED BY THE LONDON AND INDIAN STORES DEPARTMENTS

*(Vide paragraph 29 of the Report)*

*Value of stores in crores of rupees (add 7 noughts)*

*Number of contracts in thousands (add 3 noughts)*




*NOTE.-* The London Stores Department figures represent expenditure on stores and freight converted into Indian currency at a uniform rate of 1s. 6d. to the rupee. The Indian Stores Department figures represent the value of contracts placed.

# APPENDIX VIII.

# APPENDIX VIII.

THE FIGURES ARE IN THOUSANDS OF RUPEES.

## *Comparative Statement of purchases made by the London and Indian Stores Departments.*

(*Vide* paragraph 29 of the Report.)

| Indenting Departments. | 1924-25. | | | | | | | | 1925-26. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Textile and leather stores. | | Engineering and miscellaneous stores. | | Other classes of stores (*b*). | | Total. | | Textile and leather stores. | | Engineering and miscellaneous stores. | | Other classes of stores (*b*). | | Total. | |
| | London Stores Department. | Indian Stores Department. | London Stores Department. | Indian Stores Department. | London Stores Department. | Indian Stores Department. | London Stores Department. | Indian Stores Department. | London Stores Department. | Indian Stores Department. | London Stores Department. | Indian Stores Department. | London Stores Department. | Indian Stores Department. | London Stores Department. | Indian Stores Department. |
| CENTRAL. | | | | | | | | | | | | | | | | |
| ARMY. | | | | | | | | | | | | | | | | |
| 1. Military Engineering Services. | .. | 40 | 330 | 3,191 | . | .. | 360 | 3,231 | .. | 44 | 233 | 3,812 | (*a*) | .. | 233 | 3,856 |
| 2. Other Military Heads. | 11,366 | 8,863 | 17,040 | 12 | 1,989 | .. | 30,395 | 8,875 | 4,752 | 7,633 | 13,058 | 279 | 2,955 | .. | 20,765 | 7,912 |
| Total Army . | 11,366 | 8,903 | 17,400 | 3,203 | 1,989 | .. | 30,755 | 12,106 | 4,752 | 7,677 | 13,291 | 4,091 | 2,955 | .. | 20,998 | 11,768 |
| CIVIL. | | | | | | | | | | | | | | | | |
| 3. Posts and Telegraphs Department. | 15 | 499 | 1,871 | 375 | 5 | .. | 1,891 | 874 | 6 | 613 | 1,281 | 344 | 27 | .. | 1,314 | 957 |
| 4. Printing, Stationery and Stamps. | 5 | 164 | 38 | 20 | 1,092 | .. | 1,135 | 184 | 39 | 47 | 207 | 14 | 1,938 | .. | 2,184 | 61 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5. Currency Department. | .. | .. | 2 | .. | 4,147 | .. | 4,149 | .. | .. | (a) | .. | .. | 2,459 | .. | 2,459 | (a) |
| 6. Other Central Heads. | 3 | 655 | 525 | 1,379 | 186 | .. | 714 | 2,034 | 5 | 824 | 3,147 | 775 | 153 | .. | 3,305 | 1,599 |
| Total Central—Civil | 23 | 1,318 | 2,436 | 1,774 | 5,430 | .. | 7,889 | 3,092 | 50 | 1,484 | 4,635 | 1,133 | 4,577 | .. | 9,262 | 2,617 |
| 7. Railways . | 461 | 2,032 | 13,643 | 2,611 | 121 | .. | 14,225 | 4,643 | 624 | 1,535 | 37,904 | 2,672 | 176 | .. | 38,704 | 4,207 |
| PROVINCIAL. | | | | | | | | | | | | | | | | |
| 8. Madras . . | 44 | (a) | 494 | .. | 324 | .. | 862 | (a) | 35 | (a) | 2,435 | 12 | 331 | .. | 2,801 | 12 |
| 9. Bombay . | 8 | 142 | 5,748 | 2,739 | 205 | .. | 5,961 | 2,881 | 3 | 290 | 3,273 | 3,961 | 231 | .. | 3,507 | 4,251 |
| 10. Bengal . . | 2 | (a) | 122 | 2 | 138 | .. | 262 | 2 | 1 | .. | 154 | 26 | 111 | .. | 266 | 26 |
| 11. United Provinces. | 1 | (a) | 28 | .. | 10 | .. | 39 | (a) | 1 | .. | 125 | 60 | 20 | .. | 146 | 60 |
| 12. Punjab . . | 5 | 274 | 1,292 | 1,988 | 28 | .. | 1,325 | 2,262 | (a) | 325 | 590 | 1,786 | 23 | .. | 613 | 2,111 |
| 13. Bihar and Orissa. | 4 | 423 | 46 | 4 | 176 | .. | 226 | 427 | 1 | 71 | 75 | 14 | 61 | .. | 137 | 85 |
| 14. Burma . . | 50 | 208 | 822 | 2 | 107 | .. | 979 | 210 | 21 | 374 | 873 | .. | 149 | .. | 1,043 | 374 |
| 15. Central Provinces. | (a) | 2 | 70 | (a) | 8 | .. | 78 | 2 | .. | (a) | 7 | 200 | 24 | .. | 31 | 200 |
| 16. Assam . . | 4 | (a) | 50 | .. | 1 | .. | 55 | (a) | 3 | 84 | 20 | 10 | 2 | .. | 25 | 94 |
| Total Provincial . | 118 | 1,049 | 8,672 | 4,735 | 997 | .. | 9,787 | 5,784 | 65 | 1,144 | 7,552 | 6,069 | 952 | .. | 8,569 | 7,213 |
| 17. Indian States and Public Bodies. | .. | 21 | .. | 259 | .. | .. | .. | 280 | .. | 35 | .. | 815 | .. | .. | .. | 850 |
| 18. South African Government. | .. | (a) | .. | .. | .. | .. | .. | (a) | .. | .. | .. | .. | .. | .. | .. | .. |
| 19. Total of items below Rs. 500. | .. | 4 | .. | 2 | .. | .. | .. | 6 | .. | 7 | .. | 6 | .. | .. | .. | 13 |
| GRAND TOTAL . | 11,968 | 13,327 | 42,151 | 12,584 | 8,537 | .. | 62,656 | 25,911 | 5,491 | 11,882 | 63,382 | 14,786 | 8,660 | .. | 77,533 | 26,668 |

*N.B.*—The figures of the India Store Department, London, have been converted at the rate of 1*s.* 6*d.*=Re. 1.
(*a*) Items below Rs. 500.
(*b*) Stores not dealt with by the Indian Stores Department, *e.g.*, medical stores, munitions, stationery and printing, stamps, currency, foodstuffs, etc.

# APPENDIX IX.

*List of specifications framed by the Indian Stores Department current at the end of year 1926-27.*

(*Vide* para. 31 of the Report).

INDEX.

| Section No. | Name of Stores. | | Classification reference. |
|---|---|---|---|
| | Main head. | Sub-head. | |
| 1 | Bridgework . . . | .... | A |
| 2 | Engineers' plant (excluding petty tools). | .... | B |
| 3 | Workshop machinery and heavy tools. | .... | C |
| 4 | Ballast and permanent-way materials. | .... | D |
| 5 | Rolling stock . . . | .... | E |
| 6 | Station materials and fencing | .... | F |
| 7 | Tools and Stores :— | (*a*) Tools . . . . . | G/Tools. |
| | | (*b*) Stores . . . . . | |
| | | (1) Hardware, copper, tin and zinc ware. | G/Ware. |
| | | (2) Lamps and lamp fittings . | G/Lamps. |
| | | (3) Leather and India rubber goods. | G/Leather. |
| | | (4) Metals . . . . | G/Metals. |
| | | (5) Painters' stores (oils and paints). | G/O. P. |
| | | (6) Timber . . . . | G/Timber. |
| | | (7) Fuel . . . . | G/Fuel. |
| | | (8) Furniture . . . | G/Furniture. |
| | | (9) Cloth, clothing and equipments. | G/Textiles. |
| | | (10) Miscellaneous . . . | G/Misc. |
| | | (11) Stationery . . . | G/Stationery. |

## APPENDIX IX.

| Section No. | Name of Stores. | | Classification reference. |
|---|---|---|---|
| | Main head. | Sub-head. | |
| | | (12) Drawing, mathematical and surveying instruments. | G/Instruments. |
| | | (13) Printing Press and materials. | G/Prints. |
| | | (14) Sanitary stores . . | G/Sanitary. |
| | | (15) Waterworks stores . . | G/W. W. |
| | | (16) Building materials . . | G/Buildings. |
| | | (17) Chemicals . . . | G/Chemicals. |
| 8 | Electrical plant and materials | .... | H. |
| 9 | Power and industrial plant. | .... | P. I. |

## APPENDIX IX—*contd.*

### (A). *List of Indian Stores Department General Specifications current at the end of the year 1926-27.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| | SECTION 1.—*Bridgework.—A.* | |
| *A/33* | *Steelwork* (*a*) | *A/33/F.* |
| A/34 | Steel sheet piling with clutch (Joist pattern) | A/34. |
| *A/35* | *Structural steel ; Plates, sections e.g., angles, tees, joists, channels, etc., and bars.* (*b*) | *A/35/H.* |
| *A/40* | *Bridgework* (*c*) | *A/40/C.* |
| *A/48* | *Tank and staging* | *A/48.* |
| | SECTION 2.—*Engineers' plant (excluding petty Tools)—B.* | |
| B/45 | Vertical boiler | B/45. |
| B/50 | Locomultitubular boiler | B/50/1. |
| B/51 | 5 ton portable hand operated crane or 5′-6″ gauge railway track. | B/51. |
| *B*/52 | Scotch, hand, derric crane, constructed of steel | B/52. |
| B/53 | Hand operated overhead travelling and traversing cranes. | B/53/A. |
| | SECTION 3.—*Workshop Machinery and Heavy Tools.*—C. | |
| C/31 | Machine tools | C/31. |
| | SECTION 4.—*Ballast and Permanent-Way Materials.*—D. | |
| *D/1* | *Steelwork for light railway track for construction work.* (*a*) | *D/1/B.* |
| *D/2* | *Tip trucks for 1′-6″, 2′-0″, and 2′-6″ gauge railway, contractor's type.* (*a*) | *D/2/C.* |
| *D/6* | *Built-up points and crossings complete with wing rails, lever boxes and all other fittings.* | *D/6.* |

(*a*) Revised once.
(*b*) Revised twice.
(*c*) Revised thrice.

# APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| | SECTION 5.—*Rolling Stock.*—E. | |
| E/28 | Weighbridge | E/28. |
| E/29 | Engine turntable | E/29. |
| E/32 | Steam locomotive crane | E/32. |
| E/33 | *Steel fish bolts and nuts(a)* | *E/33/B.* |
| E/34 | Steel dog spikes | E/34/A. |
| E/35 | Steel, round spikes for rail chairs | E/35/A. |
| E/36 | Steel, screw spikes for railways | E/36. |
| E/37 | Laminated springs | E/37/A. |
| E/38 | Cast steel wheels with axles for 2′-6″ gauge | E/38. |
| E/42 | *Mildsteel rivets (a).* | *E/42/B.* |
| E/47 | *Mild steel bolts, nuts and washers, black and galvanized. (a)* | *E/47/A.* |
| E/48 | Cast steel wheels and axles for light tip trucks and unimportant works. | E/48. |
| E/49 | Cast iron superheater headers for locos. for railways. | E/49. |
| E/50 | Steel tyres for locomotives, tenders, carriages and wagons. | E/50. |
| E/53 | *Axle boxes, cast steel, for railway stock* | *E/53.* |
| | SECTION 7.—(*a*) *Tools.* | |
| | (1) *Tools.—G/Tools.* | |
| G/Tools/1 | *Tools for earth work etc., (picks and beaters kodalies, powrahs, mamooties or hues sledge and other hammers, jumper and drill steel).* | G/Tools/1. |
| | (*b*) *Stores.—* | |
| | (1) *Hardware, copper, tin and zinc-ware—G/Ware.* | |
| G/Ware/30 | Wire, ordinary steel, black and galvanized | G/Ware/30/A. |
| ,, 31 | Iron and steel hoops | G/Ware/31/A. |

(*a*) Revised once.

## APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition |
|---|---|---|
| | (2) *Lamps and Lamp Fittings.—G/Lamps.* | |
| G/Lamps/1 | Dark lanterns, defadars | G/Lamps/1. |
| | (3) *Leather and India rubber goods.—G/L.* | |
| G/L/38 | Vacuum brake rubber fittings for use on railways | G/L/38. |
| ,, 39 | Solid tyres for cycles | ,, 39. |
| ,, 40 | Solid tyres and tyre bands for tractors, lorries, etc. | ,, 40/A. |
| ,, 41 | Pneumatic tyres and outer covers and inner tubes for cycle cars and motor cycles, etc. | ,, 41/B. |
| ,, 42 | Pneumatic tyres outer covers and inner tubes for cycles. | ,, 42. |
| | (4) *Metals.—G/Metals.* | |
| G/Metal/9 | Manganese steel castings | G/Metal/9 |
| ,, *16* | *Mild steel rods for ferro-concrete work* (*a*) | ,, *16/B.* |
| ,, 21 | Short link chains | ,, 21. |
| ,, 40 | Tinned plates | ,, 40/A. |
| ,, *41* | *Sheets, galvanized steel, flat or corrugated*(*a*) | ,, *41/C.* |
| ,, 42 | Sheets, plain galvanized iron | ,, 42. |
| ,, 45 | Sheets, milled lead | ,, 45 |
| ,, 46 | Pig lead | ,, 46. |
| ,, 51 | Small ropes or cords of steel wire | ,, 51. |
| ,, 53 | Solder | ,, 53. |
| ,, 54 | Tin sticks for tinning cooking pots and similar purposes | ,, 54/A. |
| ,, 55 | Tin in ingots | ,, 55. |
| ,, 56 | Copper in ingots | ,, 56. |
| ,, 57 | White metal in ingots for axlebox lining | ,, 57. |
| ,, 58 | Copper sheets annealed for spinning | ,, 58. |
| ,, 59 | Brass sheets, annealed for spinning or cold working. | ,, 59. |
| ,, 60 | Zinc sheets | ,, 60. |

(*a*) Revised once.

# APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| | (5) *Painters' stores.—G/O. P.* | |
| G/O. P./3 | Shellac | G/O. P./3. |
| " 4 | Spirits, denatured methylated | " 4. |
| " 13 | Oil, aircraft, medium | " 13. |
| " 14 | Oil, aircraft, heavy | " 14. |
| " 20 | Oil, lubricating, axle for use during hot weather | " 20/A. |
| " 21 | Oil, lubricating, axle for use during cold weather | " 21/A. |
| " 33 | Creosote | " 33/A. |
| " 38 | Petrol aviation | " 38. |
| " *60* | *Soap, hard (a)* | " *60/A.* |
| " *61* | *Soap, soft (a)* | " *61/A.* |
| " 67 | Wood tar | " 67/A. |
| " 95-106 | Paints, & painter's materials | " 95-106. |
| " *107* | *Paints, and painter's materials (a)* | " 107. |
| " 108-149 | Paints, and painter's materials | " 108-149. |
| " *201* | *Oil, spindle, extra light (a)* | " *201.* |
| " *202* | *Oil, spindle, light (a)* | " *202.* |
| " *203* | *Oil, spindle (a)* | " *203.* |
| " *204* | *Oil, machinery, light (a)* | " *204.* |
| " *205* | *Oil, machinery, medium (a)* | " *205.* |
| " *206* | *Oil, engine, light (a)* | " *206.* |
| " *207* | *Oil, engine, medium (a)* | " *207.* |
| " *208* | *Oil, engine, heavy (a)* | " *208.* |
| " *211* | *Oil, internal combustion engine, light (a)* | " *211.* |
| " *212* | *Oil, internal combustion engine, medium (a)* | " *212.* |
| " *213* | *Oil, internal combustion engine, heavy (a)* | " *213.* |
| " *214* | *Oil, internal combustion engine, extra heavy (a)* | " *214.* |
| " *221* | *Oil, crank chamber (a)* | " *221.* |
| " *222* | *Oil, crank chamber, heavy (a)* | " *222.* |

(*a*) Revised once.

## APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| *G/O. P./231* | *Oil, compressor, light (a)* | *G/O. P./231.* |
| „ *232* | *Oil, compressor, medium (a)* | „ *232.* |
| „ *233* | *Oil, compressor, heavy (a)* | „ *233.* |
| „ *241* | *Oil, cylinder, common (a)* | „ *241.* |
| „ *242* | *Oil, cylinder, pure mineral, ordinary (a)* | „ *242.* |
| „ *243* | *Oil, cylinder, pure mineral, superheat (a)* | „ *243.* |
| „ *244* | *Oil, cylinder, compounded, oridnary (a)* | „ *244.* |
| „ *245* | *Oil, cylinder, compounded, superheat (a)* | „ *245.* |
| „ *246* | *Oil, cylinder, filtered, compounded (a)* | „ *246.* |
| „ *247* | *Oil, cylinder, filtered, pure mineral (a)* | „ *247.* |
| „ *251* | *Oil, non-freezing, extra light (a)* | „ *251* |
| „ *252* | *Oil, non-freezing, light (a)* | „ *252.* |
| „ *253* | *Oil, common, dark (a)* | „ *253.* |
| „ *254* | *Oil, axle (a)* | „ *254.* |
| „ *261* | *Petrol (a)* | „ *261.* |
| „ *262* | *Kerosene, 1st quality (a)* | „ *262.* |
| „ *263* | *Kerosene, 2nd quality (a)* | „ *263.* |
| „ *264* | *Kerosene, 3rd quality (a)* | „ *264.* |
| „ *265* | *Oil, fuel, 1st quality (a)* | „ *265.* |
| „ *266* | *Oil, fuel, 2nd quality (a)* | „ *266.* |
| „ *267* | *Oil, mineral, colza (a)* | „ *267.* |
| „ *271* | *Oil, transformer (a)* | „ *271.* |
| „ *272* | *Oil, switch (a)* | „ *272.* |
| „ *273* | *Oil, sealing (a)* | „ *273.* |
| „ *281* | *Oil, castor (a)* | „ *281.* |
| „ *282* | *Oil, coconut (a)* | „ *282.* |
| „ *283* | *Oil, mustard (rape) (a)* | „ *283.* |

(*a*) Revised once.

## APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| *G/O. P./284* . . . | *Tallow* (*a*) . . . . . . . | *G/O, P./284.* |
| „ *291* . . . | *Grease, cup* (*a*) . . . . . . | „ *291.* |
| „ *292* . . . | *Grease, graphite* (*a*) . . . . . | „ *292.* |
| „ *293* . . . | *Mineral, jolly* (*a*) . . . . . . | „ *293.* |
| | (6) *Timber.—G/Timber.* | |
| G/Timber/30 . . | Deodar sleepers . . . . . . . | G/Timber/30/A. |
| „ 34 . . | Teak squares . . . . . . . | „ 34/A. |
| „ 35 . . | Teak scantlings . . . . . . . | „ 35. |
| | (9) *Cloth, clothing and equipment.—G/Textiles.* | |
| G/Tex/C/1 . . . | Cotton twine 5/10[s] . . . . . | G/Tex/C/1. |
| „ 2 . . . | Drill, cotton, khaki (medium quality) . . . | „ 2. |
| „ 3 . . . | Drill, cotton, white, bleached (medium quality) | „ 3. |
| „ 4 . . . | Cotton canvas, brown . . . . . . | „ 4. |
| „ 5 . . . | *Gauze, absorbent cotton white, bleached* (*a*) . . | „ *5/A.* |
| „ 6 . . . | Boy messenger's bag . . . . . . | „ 6. |
| „ 7 . . . | Sheets, ground . . . . . . . | „ 7. |
| „ 8 . . . | Paulins, cotton . . . . . . . | „ 8. |
| „ 9 . . . | Durries, blue striped . . . . . . | „ 9. |
| „ 10 . . . | Bags, kit . . . . . . . . | „ 10. |
| „ 11 . . . | Bags, ration, waterproof . . . . . | „ 11. |
| „ 12 . . . | Haversack . . . . . . . . | „ 12. |
| „ 13 . . . | Capes, waterproof, Indian, with hood . . . | „ 13. |
| „ 14 . . . | Capes, waterproof, Burman . . . . . | „ 14. |
| „ 15 . . . | Newar grey . . . . . . . . | „ 15. |
| „ *16/A* . . | *Cotton putties khaki* (*a*) . . . . . | „ *16/A.* |
| „ 17 . . . | Capes with hood, waterproof for the Postal Department. | „ 17. |

(*a*) Revised once.

## APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition |
|---|---|---|
| *G/Tex/C/18* . . . | *Cotton wool for bandages for Medical Department* | *G/Tex/C/18.* |
| „ *19* . . . | *Long cloth bleached for the Medical Department* . | „ *19.* |
| „ 21 . . . | Bags, dosooti, postal . . . . . . | „ 21/A. |
| „ 22 . . . | Drill, cotton, blue . . . . . . | „ 22/A. |
| „ 23 . . . | Drill, cotton, grey . . . . . . | „ 23. |
| „ *24* . . . | *Cotton, yarn, grey* . . . . . . | „ *24.* |
| „ *28* . . . | *Dusters (Third class)* . . . . . . | „ *28.* |
| „ *30* . . . | *Sheeting, unbleached* (*a*) . . . . . . | „ *30/A.* |
| „ 34 . . . | Muslin (bleached) . . . . . . | „ 34. |
| „ *35* . . . | *Long cloth, unbleached for bandages* (*a*) . . | „ *35/A.* |
| „ *36* . . . | *Bandage cloth (bleached)* (*b*) . . . . | „ *36/B.* |
| „ 49 . . . | Waste, cotton, white No. 1 A. . . . . | „ 49/A. |
| „ 50 . . . | Waste, cotton, white No. 1/B . . . . | „ 50. |
| „ 51 . . . | Waste, cotton, coloured No. 2 . . . . | „ 51. |
| „ 52 . . . | Waste, cotton, white or coloured for cleaning ordinary machinery. | „ 52. |
| G/Tex/W/1 . . . | Wool, black and mixed for blankets . . | G/Tex/W/1. |
| „ 15 . . | Serge, white, for medical and veterinary requirements. | „ 15. |
| „ 16 . . | Flannel, white . . . . . . | „ 16. |
| G/Tex/F/1 . . . | Superintendent's camp bag, flax canvas, single | G/Tex/F/1. |
| „ 2 . . . | Superintendent's camp bag, flax canvas, double | „ 2. |
| „ 4 . . . | Bags, nose . . . . . . . . | „ 4. |
| „ 5 . . . | Buckets, canvas, for ponies . . . . . | „ 5. |
| „ 6 . . . | Planter's bag, unproofed and flax canvas . | „ 6. |
| „ 45 . . . | Dowlas 54″ . . . . . . . . | „ 45. |
| „ *46* . . . | *Paulins* (*a*) . . . . . . . . | „ *46/B.* |
| G/Tex/H/3 . . . | Hemp twine, English and country . . . | G/Tex/H/3. |
| „ *4* . . . | *Ropes and cordages, Manilla, Hawser laid, for the Director General of Posts and Telegraphs.* | „ *4* |

(*a*) Revised once.
(*b*) Revised twice.

## APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| G/Tex/J/1 | Jute twine, 1-ply, 2-ply, 3-ply, 4-ply, 5-ply and 6-ply. | G/Tex/J/1. |
| „ 5 | Proofed Jute mail bags | „ 5. |
| „ 11 | Planter's jute bag unproofed with locking arrangements. | „ 11-A. |
| „ 12 | Jute bags unproofed for linemen's tools | „ 12/A. |
| „ 16 | Proofed jute mail bags, single | „ 16/A. |
| „ 17 | Proofed jute mail bags, double | „ 17/A. |
| „ 18 | Unproofed jute mail bags, single | „ 18/A. |
| „ 22 | Jute parcel bags, special size | „ 22. |
| „ 23 | Jute paulins | „ 23/B. |
| „ 32 | Jute canvas No. C/2 bag | „ 32. |
| | (10) *Miscellaneous.—G/Misc.* | |
| *G/Misc./1* | *Padlocks and locks, box drawers, etc.* (a) | *G/Misc./1/C.* |
| „ 2 | Carbide of calcium | „ 2. |
| „ 3 | Kit boxes for sea services for M. E. S. | „ 3. |
| „ *17* | *Brush, sweeping* | „ *17.* |
| „ *18* | *Brush for painting letter-boxes* | „ *18.* |
| „ *19* | *Brush for cleaning stamps* | „ *19.* |
| | (15) *Waterworks stores.—G/W. W.* | |
| G/W. W/27 | Salt glazed earthenware pipes | G/W. /27. |
| „ 28 | Wrought iron or mild steel pipes for steam | „ 28/A. |
| „ 29 | Wrought iron or mild steel pipes for gas | „ 29/B. |
| „ 30 | Wrought iron or mild steel pipes for water | „ 30/A. |
| „ 32 | Cast iron pipes and special casting | „ 32. |
| „ 43 | Lead pipes for water | „ 43. |

(a) Revised once..

## APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| | (17) *Chemicals.— G/Chemicals.* | |
| G/Chemicals/9 | Nitric acid, commercial | G/Chemicals/9. |
| ,, 11 | Hydrochloric acid, commercial | ,, 11. |
| ,, 12 | Hydrochloric acid, pure | ,, 12. |
| ,, 14 | Sulphuric acid, concentrated, for accumulators | ,, 14. |
| ,, 15 | Sulphuric acid, commercial | ,, 15. |
| ,, *16* | *Alumina-ferric* | ,, *16.* |
| | SECTION 8.—*Electrical plant and Materials.*—H. | |
| *H/39* | *Alternating current punkha motors and control gear, etc.* | *H/39.* |
| H/45 | Steel poles, tubular type, for electric power transmission. | H/45. |
| H/46 | Electrical flexible cords, single conductors, etc. | H/46. |
| H/48 | Alternating current ceiling fans | H/48. |
| H/50 | Bridge megger testing set | H/50. |
| H/51 | Control panel D. C. motor ironclad | H/51/A. |
| H/52 | Normal type tungsten filament incandescent lamp. | H/52/A. |
| H/53 | Carbon filament, electric lamp | H/53. |
| H/54 | Gas-filled tungsten filament incandescent electric lamp. | H/54/A. |
| H/55 | Fans ceiling and regulators (D. C.) | H/55/A. |
| H/56/A | Copper wire hard drawn bare (Under revision) | H/56/A. |
| *H*/57 | Cable, electric, single ,V. I. R. | H/57. |
| H/58/A | Wood casing and caping | H/58/A. |
| H/60 | Copper wire, hard drawn, for telegraph or telephone | *H*/60. |
| | SECTION 9—*Power and industrial plant*—P. I. | |
| P.I./12 | Electric machinery | P.I./12. |
| ,, 19 | Dragline excavator, oil engine operated | 19. |

## APPENDIX IX—*contd.*

| Specification No. | Description. | Current edition. |
|---|---|---|
| *P.I./20* . . . | Dragline excavator, light weight, steam operated, coal firing. | *P.I./20.* |
| „ *21* . . . | *Dragline excavator, steam operated, coal or oil firing.* | „ *21.* |
| „ *22* . . . | *Dragline excavators, crude oil engine operated* . | „ *22.* |
| „ 26 . . . | Jolly boat . . . . . . . | „ 26. |
| „ 35 . . . | Dragline excavator, light weight, steam operated, coal or oil firing. | „ 35. |
| „ 36 . . . | Electric hoists or winches . . . . . | „ 36. |
| „ 37 . . . | Dredgers (grab type) . . . . . . | „ 37. |
| „ 38 . . . | Petrol paraffin engine . . . . . . | „ 38. |
| „ 39 . . . | Belting for power drive . . . . . . | „ 39/A. |
| „ 40 . . . | Motor boat . . . . . . . | „ 40. |
| „ 42 . . . | Steam pile driving plant . . . . . | „ 42. |
| „ 43 . . . | Crude oil engine . . . . . . . | „ 43/B. |
| „ 44 . . . | Dragline excavator (heavy type) . . . . | „ 44. |
| „ 45 . . . | Dragline excavator, medium weight, steam operated, coal or oil firing. | „ 45. |
| „ 49 . . . | Dragline excavator . . . . . . | „ 49. |
| „ 60 . . . | Centrifugal pumps . . . . . . | „ 60. |
| „ 61 . . . | Stone breaker, etc., oil engine driven . . . | „ 61. |
| „ 62 . . . | Mortar grinding mill . . . . . . | „ 62. |
| „ 65 . . . | Dragline excavator, special, light weight, steam operated, coal or oil firing. | „ 65. |
| „ *74* . . . | *D. C. generators and motors* . . . . . | „ *74.* |
| „ 75 . . . | Rotary convertor . . . . . . . | „ 75. |
| „ 76 . . . | Electric power transformers . . . . . | „ 76. |
| „ *77* . . . | *Alternators* . . . . . . . | „ *77.* |
| „ 80 . . . | Plant and machinery . . . . . . | „ 80. |
| „ 81 . . . | D. C. Switchboard . . . . . . | „ 81. |
| „ 82 . . . | D. C. generator, 3 wire type and static balancers | „ 82. |
| „ 95 . . . | Electrically operated, overhead, travelling and traversing crane. | „ 95. |

NOTE.—Specifications framed during the year 1926-27 have been shown in italics.
Specifications revised during the year 1926-27 have been shown in italics and marked as revised.

## APPENDIX IX—*contd.*

### (*B*) *List of Indian Stores Department special specifications current at the end of of the year 1926-27.*

| Specification No. | Description. |
|---|---|
| | SECTION 1.—*Bridgework.*—A. |
| A/31 . . . | Standard mobilization steel, hutting. |
| A/32 . . . | The steel and iron work required by the Indian Public Works Department, Delhi, for the roofing of the Assembly, the Council of State and the Council of Princes' Chambers and Library of the New Legislative Buildings, Imperial Delhi. |
| A/36 . . . | Special construction quarters (portable hutting), for the Lloyd Barrage Project. |
| | SECTION 2.—*Engineers' Plant (Excluding Petty Tools).*—B. |
| B/48 . . . | Portable steam pumping engine equipment with vertical boiler and hose pipe for the Bikaner Canal, Punjab. |
| B/49 . . . | One 7-ton Scotch hand derrick crane for the Irrigation Department, Punjab. |
| | SECTION 5.—*Rolling Stock.*—E. |
| E/30 . . . | Metre gauge steam rail motor with goods truck and goods trailer truck required for the Sutlej Valley Project, Punjab Public Works Department. |
| E/31 . . . | Steam locomotives, 2′-0″ gauge, for the Sutlej Valley Project, Bikaner Canal, Punjab Public Works Department. |
| E/40 . . . | Steam locomotives, 2′-0″ gauge, for the Sutlej Valley Project, Bikaner Canal, Punjab Public Works Department. |
| | SECTION 7.—(10) *Miscellaneous.*—*G/Misc.* |
| G/Misc./4 . . . | Boxes, tinned plate, for the Postmaster General, Bombay. |
| „ 5 . . . | Despatch boxes, for the Postmaster-General, Bombay. |
| „ 6 . . . | Safes for the Director-General of Posts and Telegraphs. |
| „ 7 . . . | Insurance seal type boxes for the Postmaster-General, Bombay. |
| „ *8* . . . | *Lead seals for Post and Telegraph Department.* |
| „ *9* . . . | *Clocks and time pieces for the Post and Telegraph Department.* |
| „ *10* . . | *Tin trays to hold Rs. 1,000 and Rs. 500 for the Post and Telegraph Department.* |
| „ *20*. . . | *Wooden block for label for the Post and Telegraph Department.* |
| „ *21* . . | *Enamelled sheet steel signboards, letter box plates, etc., for the Post and Telegraph Department.* |

# APPENDIX IX—*contd.*

| Specification No. | Description. |
|---|---|
| | SECTION 7.—(?) *Lamps and Lamp Fittings.—G/Lamps.* |
| *G/Lamps/11* . . | *R. M. S. Folding candle lanterns for the Post and Telegraph Department.* |
| " *16* . . | *Brass sealing lamps for the Post and Telegraph Department.* |
| " *23* . . | *Table lamp, hanging lamp and hurricane lantern.* |
| " *24* . . | *Incandescent hurricane or hanging lantern petrol pressure type, for the Post and Telegraph Department.* |
| | SECTION 7.—(9) *Cloth, Clothing and Equipment.—G/Textiles.* |
| *G/Textile/C-20* . . | *Specification for summer uniforms for the East Indian Railway Staff.* |
| " *25* . . | *File bundling sheet of blue drill for the Post and Telegraph Department.* |
| " *26* . . | *Khaki drill sacks, postman's, for the Post and Telegraph Department.* |
| " *27* . . | *Waterproof khaki drill delivery bag, for the Post and Telegraph Department.* |
| " *29* . . | *Clothing materials for the use of the Staff of the Post and Telegraph Department.* |
| *G-Textile/W-2* . . | *Winter uniforms for the use of East Indian Railway Staff.* |
| " *17* . . | *Great coats with capes for mounted and foot police, Sind.* |
| *G-Textile-Misc.-6* . | *Waist and shoulder belts of red broad cloth for the Post and Telegraph Department.* |
| | SECTION 7.—(5) *Painters Stores G/O.P.* |
| G/O.P.-43 . . | Oils for use of Government Telegraph Department. |
| " 150 . . | High speed engine superheated steam cylinder oil, pure mineral, filtered for O. & R. Railway. |
| " 151 . . | High speed engine superheated steam cylinder oil, compounded, filtered for O. & R. Railway. |
| " 152 . . | Oil, lubricating crank chamber, high speed steam engine No. 2, for O. & R. Railway. |
| " 153 . . | Kerosine oil K-1 in bulk suitable for gas making for B. N. Railway. |
| | SECTION 7 —(4) *Metals.—G/Metals.* |
| *G/Metals/64* . . | *Tin sheets for the Post and Telegraph Department.* |
| " *65* . . | *Tin seal holder for the Post and Telegraph Department.* |
| " *66* . . | *Tin type box and insurance seal box for the Post and Telegraph Department.* |

## APPENDIX IX—*contd.*

| Specification No. | Description. |
|---|---|
| | SECTION 7.—(*15*) *Water Works Stores.—G/W.W.* |
| G/W.W./31 . . | Wrought iron or mild steel pipes for water for the Bikaner Canal. |
| | SECTION 8.—*Electrical Plant and Materials.—H.* |
| H/59 . . . | One switchboard generator panel for Ambala. |
| H/61 . . . | Low and medium pressure paper insulated lead covered and steel tape armoured, 3 core and 2 core electric cables for the Indian Public Works Department, Delhi. |
| | SECTION 9.—*Power and Insustrial Plant.—P. I.* |
| P.I./27 . . . | Heave up boat for the Lloyd Barrage Works, Sukkur. |
| „ 41 . . | Pile driver and frame for the Sutlej Valley Project. |
| „ 46 . . . | Steam and exhaust piping for the Nalagarh Power House. |
| „ 47 . . . | Two 25 K. W. oil engine driven generating sets and switchboard for the B. I. Barracks, Lahore. |
| „ 48 . . . | Turbo-alternator set, condensing plant, cranes, boiler, economiser pumps, steel chimney, steam and exhaust pipework, switchboard, motor converter set, rotary converters, substation plant, extra high tension feeder cables and auxiliaries for the P. W. D., Delhi. |
| „ 50 . . . | Concrete mixers and prime movers required for the Bikaner Canal, Sutlej Valley Project. |
| „ 51 . . . | Stone breaker plant and screens for the Nalagarh Quarries, Sutlej Valley Irrigation Project. |
| „ 52 . . . | Generating plant, transformers, switchgear, pump and motors, for the Nalagarh Quarries Power Plant, Punjab Irrigation Department. |
| „ 53 . . . | Generating plant, transformers, switchgear, pump and motors, for the Ferozepore Divn. Power Plant, Punjab Irrigation Department. |
| „ 54 . . . | Concrete mixers with motors for the Sutlej Valley Project. |
| „ 55 . . . | One 53·4 K. V. A. oil engine driven A. C. generating set with exciter for the Northern India Salt Revenue Department, Sambhar Lake. |
| „ 56 . . . | Switchgear for the N. I. S. R. Department, Sambhar Lake. |
| „ 57 . . . | A. C. Motor and controlgear for the Government of India Press, Simla. |
| „ 58 . . . | A. C. motors, controlgear, main switch panel, cable work and wiring for the experimental Spinning Plant and Technological Laboratory of the Indian Central Cotton Committee, Bombay. |
| „ 59 . . . | Two 4 K. W. oil engine-driven generating sets and switchboards for the Military Works Services, Nowshera Sub-District, Northern Command. |
| „ 63 . . . | Passenger, goods and service lifts required by the Indian Public Works Department, for the new Legislative Buildings, Delhi. |

## APPENDIX IX—*contd.*

| Specification No. | Description. |
|---|---|
| P.I. 64 . . . . | Passenger, goods and service lifts required by the Indian Public Works Department for Government House, Delhi. |
| " 66 . . . . | Oil engine alternator set water cooling plant, crane, switchgear and cables for power station : transformer switchgear and cables for a sub-station for the Lloyd Barrage Works, Sukkur. |
| " 70 . . . . | Oil engine dynamo sets, main fuel tank complete with pipework, water cooling plant, crane, switchgear and cables for power station and motors, controlgears and cables for the press machinery for the Government Postal Press, Aligarh. |
| " 78 . . . . | Additional oil engine alternator sets, water cooling plants, transformers, switchgear and cables for the power station of the Lloyd Barrage Works, Sukkur. |
| " 79 . . . . | Concrete blockyard plant for the Lloyd Barrage Project, Sukkur. |
| " 83 . . . . | 325 K. W. oil engine alternator sets, water cooling plant, oil fuel storage tank complete with pipework, crane, transformers, switchgear, and connecting cables, induction motors, E. H. T. feeder cables and accessories for power station and miscellaneous plant ; for Salt Mines, Khewra. |
| " 84 . . . . | Goods lifts for Postal Press, Aligarh. |
| " 85 . . . . | Electrically driven pumping machinery mounted on pontoons for de-watering coffer dams for the Lloyd Barrage Works, Sukkur. |
| " 86 . . . . | Oil engine driven power plant for the New Power Station, M. B. Mussooree. |
| " 87 . . . . | Plant for hydro-electric scheme, M. B. Mussooree. |
| " 88 . . . . | Oil engine driven power station for Jaipore. |
| " 89 . . . . | Pile driving plant mounted on pontoons for the Lloyd Barrage Works, Sukkur. |
| " 90 . . . . | Scotch derrick crane, motor driven, to lift 25 and 10 tons, on pontoons for the Lloyd Barrage Works, Sukkur. |
| " 91 . . . . | Steam driven paddle tugs for the Lloyd Barrage Works, Sukkur. |
| " 92 . . . . | Barges for the Lloyd Barrage Works, Sukkur. |
| " 93 . . . . | Oil engine driven (diesel) Bucyrus dragline excavators, 30 B, for the Lloyd Barrage Works, Sukkur. |
| " 94 . . . . | Oil engine driven (diesel) Bucyrus dragline excavators, 50B, for the Lloyd Barrage Works, Sukkur. |
| " 96 . . . . | *Electrical Plant for P. W. D., Punjab.* |
| " 97 . . . . | 30-B diesel engine driven Bucyrus dragline excavator for the Lloyd Barrage Works, Sukkur. |

# APPENDIX IX—*concld.*

| Specification No. | Description. |
| --- | --- |
| P.I. *99* . . . | *Steel barges of capac ty up to 100 tons of stone for the Lloyd Barrage Works, Sukkur.* |
| " *100* . . . | *50-B Diesel engine driven Bucyrus dragline excavator for the Lloyd Barrage Works, Sukkur.* |
| " *103* . . . | *250 K. W., 2300 volts full diesel oil engine alternator sets for the P. W. D., Simla.* |

Specifications framed during the year 1926-27 have been shown in italics.

# APPENDIX IX-A.

## *List of Schedules of Requirements framed by the Indian Stores Department current at the end of the year 1926-27.*

(*Vide* para. 32 of the Report.)

| S.R. No. | Subject. |
|---|---|
| | (a) *Framed prior to 1926-27.* |
| 1 | Oil engine driven generating set and switchboard for B. I. Barracks, Lahore. |
| 2 | Portable centrifugal pumping equipment with engine petrol paraffin for Punjab. |
| 3 | Oil engine driven A. C. generating set, Northern India Salt Revenue Department. |
| 4 | Oil engine driven generating set and switchboard for Military Works Services, Nowshera. |
| 5 | Dragline excavator for Chananwala, Punjab. |
| 6 | 15 B. H. P. oil engine for Sukkur, Sind. |
| 7 | Centrifugal pumping equipment with oil engine for Sukkur, Sind. |
| 8 | Scotch hand derric crane constructed of steel for Sukkur area. |
| 9 | Stone crashing plant complete with oil engine equipment for Sukkur area. |
| 10 | Weigh bridge for Sukkur area. |
| 11 | Belting for power drive. |
| 12 | Cable electric single V. I. R. insulated (250 volts 600 megohm grade). |
| 13 | Steam locomotive crane for Sukkur area. |
| 14 | Steam pile driving plant for Sukkur area. |
| 15 | Steel sheet piling for Sukkur area. |
| 16 | Pile driver and frame for Sutlej Valley Project. |
| 17 | Fuel pumping equipment for Peshawar. |
| 18 | Electric hoist or winch for Punjab. |
| 19 | Water storage tanks complete with steel staging for Sukkur area. |
| 20 | Wood casing and capping for electric wiring. |
| 21 | Laminated springs for wagons, class C. 3. |
| 22 | Machine tools. |
| 23 | Direct current ceiling fans. |
| 24 | Variable speed D. C. motor and controlgear for Forest Research Institute College, Dehra Dun. |
| 25 | 10 B. H. P. oil engine complete with generator and switchboard for Kasauli Hill. |

## APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
| --- | --- |
| 26 | Wrought iron pipe and fittings for water for Sukkur area. |
| 27 | Mixed paints and linseed oils and turpentine. |
| 28 | Hand operated overhead travelling and traversing crane for Lahore. |
| 29 | Dredger grab type for Sutlej Valley Project. |
| 30 | Motor boat. |
| 31 | Reduced white lead (stiff paint). |
| 32 | Steel work for the workshop building for the Lloyd Barrage. |
| 33 | D. C. iron clad flexible unit type starting panel for Ambala. |
| 34 | Cast iron pipes for Sukkur area. |
| 35 | Motor grinding mill coupled with oil engine equipment. |
| 36 | Kerosine oil engine for Lahore, Punjab. |
| 37 | 15-18 H. P. oil engine crude, for Punjab. |
| 38 | Steel fishbolts and nuts for British Standards 90 lbs. rail. |
| 39 | Motor driven house service centrifugal pumping equipment for Solemanke. |
| 41 | 12½ B. H. P. kerosine oil engine horizontal type for Saidgi, Waziristan. |
| 42 | Mild steel rods for ferro concrete work for Bakshankhan. |
| 43 | Mixed paints linseed oils and turpentines. |
| 44 | Steelwork for roofing of New Power House, Delhi. |
| 45 | Shunt wound direct current generator and panel. |
| 46 | Wrought iron pipes and fittings. |
| 47 | Steel sheet piling for Sukkur area. |
| 74 | Petrol engine driven pump for fire service. |
| 75 | Air compressor 500 c. ft. belt drive with crude oil engine. |
| 76 | Dragline excavator light weight caterpillar type steam operated coal or oil firing or crude oil engine drive. |
| 77 | Dog spikes. |
| 78 | Steam pipes and fittings for Government Model Tannery, Shahdara. |
| 79 | D. C. motors control panels and appliances for Mechanical Transport Workshops, Peshawar. |
| 80 | Dragline excavator special C type steam operated coal firing. |

## APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 81 | 5-ton hand operated crane for head work, Western Jumna Canal. |
| 82 | Bridge over Weir at Sulemanke Sutlej Valley Project (Chananwala). |
| 83 | Pump motor and controlgear for Military Works Services, Manzai, Waziristan. |
| 84 | 8-ton hand operated crane for the Sutlej Valley Project. |
| 85 | Oils, lubricating and petrol. |
| 86 | Electric fans on single phase 50 cycle 240 volts A. C. for Director General of Posts and Telegraphs. |
| 87 | Direct current motor and controlgear. |
| 88 | Oil engine centrifugal pumping equipment. |
| 89 | Ruston 6 dragline excavator for Hafizabad. |
| 90 | D. C. motors with control panels and half couplings and accessories for Mechanical Transport Workshops, Peshawar. |
| 91 | Electrically driven centrifugal pumping equipment for the P. W. D., N. W. F. P. |
| 92 | Rotary convertor set complete with step down transformer and starting and control equipment. |
| 93 | Combined 2′-0″ gauge rail and road bridge over Islam Weir Sutlej Valley Project. |
| 94 | Alternating current ceiling fans and accessories. |
| 95 | Dragline excavator, light weight, caterpillar type, crude oil engine drive. |
| 96 | Motor generator set and extra motor for cinema work, Viceregal Estates, Simla and Delhi. |
| 97 | Electric motor, starter and switch for the Metallurgical Inspectorate, Jamshedpur. |
| 98 | Pumping plant for Dagshai Water Supply. |
| 99 | Tube well pumping for Allahabad. |
| 100 | Mild steel tank, 1,500 gallons capacity on steel staging 7′-0″ high. |
| 101 | Scotch hand derrick cranes constructed of steel. |
| 102 | Workshops and workshop plant and machinery for Lloyd Barrage Project. |
| 103 | Motor and oil engine driven air compressor for Lloyd Barrage Project. |
| 104 | Light Railway material for Lloyd Barrage Project. |
| 107 | Electrically driven pumping sets for Gopi, Head Works, Rawalpindi. |
| 108 | Structural steel for R. C. tank, Risalpure, N. W. Railway. |
| 109 | Shafting and accessories for Ginning Factory, Jaipur State. |
| 110 | Steel girders for Ball Room, Government House, Delhi. |

## APPENDIX IX-A—*contd*.

| S.R. No. | Subject. |
|---|---|
| 111 | Electrically driven centrifugal pumping equipment, Lahore Cantonment. |
| 112 | Steelwork for Workshop Building (Janvri Station), Rohri. |
| 113 | Crude oil engine Lloyd Barrage Works, Janvri Station. |
| 114 | A. C. motors for Lloyd Barrage Works. |
| 115 | Steel wire rope for dragline excavators. |
| 116 | Oil engine driven direct current generator sets and switchgear for Military Engineering Service, Jhansi. |
| 117 | Cast iron wheels and special D class steel axles for the Chief Ordnance Officer, Rawalpindi. |
| 118 | 16 B. H. P. crude oil engine for Lahore. |
| 119 | D. C. motor and controlgear for Bannu. |
| 120 | Steam and hand operated all round derrick cranes for the Lloyd Barrage Works. |
| 121 | Portable centrifugal equipment, Jaipure, Rajputana. |
| 122 | Fuel oil and water tanks and staging, and oil engines and pumps for water and oil pumping for the Lloyd Barrage Project. |
| 123 | Electrically operated gantry cranes for the Lloyd Barrage Works. |
| 124 | Pumping and electric generating plant for camp, Miranshah. |
| 127 | Pumping equipment for M. E. S., Saugor. |
| 128 | Mild steel tank on steel staging with roof. |
| 129 | Hand operated crane for Lloyd Barrage Project, Rohri. |
| 130 | Steel wire rope, extra flexible, galvanized. |
| 131 | Telephone system for Jaipur city. |
| 132 | Two-ton hand operated overhead travelling crane. |
| 133 | Pumping equipment for Dalowali. |
| 134 | Hand operated overhead travelling crane. |
| 135 | 5 K. W. oil engine driven dynamo set and switchboard, Hindubagh, Baluchistan. |
| 136 | Oil engine driven centrifugal pumping equipment. |
| 137 | Roof trusses and roofing for engine shed for Sukkur and Janvari, Lloyd Barrage Project. |
| 138 | Power Plant for Jubbulpur. |
| 139 | Petrol engine driven centrifugal pumping equipment for fire service for Peshawar. |
| 140 | Fuel oil storage tank, Lloyd Barrage Works, Sukkur. |

## APPENDIX IX-A—*contd.*

| S. R. No. | Subject. |
|---|---|
| 141 | Electric motor for Postal Press, Aligarh. |
| 142 | Tank galvanized iron, water, and small pumping equipment for the Postal Press, Aligarh. |
| 143 | Oil engine driven generator set for Allahabad. |
| 144 | Steel tanks and oil engine driven pumping equipment for Lloyd Barrage Works. |
| 145 | Triple ram pump and oil engine. |
| 146 | Galvanized steel row boat. |
| 147 | Motor lorries for water. |
| 148 | Oil tanks and pumps for Sutlej Valley Project. |
| 149 | Material trolley for Lloyd Barrage and Canal Construction Works. |
| 150 | Bowstring girder bridge to carry water mains, Delhi. |
| 151 | Cast iron wheels and mild steel axles. |
| 152 | Gantry for Jhansi Power House. |
| 153 | 600 megohm grade V. I. R. insulated cables and flexible cord. |
| 154 | 500-1,000 gallons per hour ram pump. |
| 155 | Steel roof for Power House, Lloyd Barrage Works, Sukkur. |
| 156 | Small electrically driven ice plant for Sulemanke Headworks. |
| 157 | Roofing for Power House, Khewra. |
| 158 | Portable concrete mixers and prime movers, for Lloyd Barrage Works, Sukkur. |
| 159 | Steelwork for Multan Water Works. |
| 160 | Bridge over Islam Weir. |
| 161 | Motor wound reversible and control panel for Lyallpur. |
| 162 | Variable speed shunt wound motor and controlgear for Government Press, Delhi. |
| 163 | Crude oil engines, 5 B. H. P. for Sialkot. |
| 164 | Steelwork for Store Shed on left bank. |
| 165 | Lancashire Boiler for Government Opium Factory, Ghazipore. |
| 166 | Air compressors concreté rammers, rivetters and flexible piping. |
| 167 | Pumping plant for Khanna Dak, Chaklala. |
| 168 | Crushing tester for Lloyd Barrage Works, Sukkur. |
| 169 | 6,600 volts subaqueous cable and boxes for the Lloyd Barrage, Sukkur. |
| 170 | Steelwork for switchboard gallery Power House, Lloyd Barrage Works, Sukkur. |

## APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 171 | Two-ton overhead travelling and traversing crane for O. & R. Railway, Lucknow. |
| 172 | Centrifugal pump for the Lloyd Barrage Works, Sukkur, Sind. |
| 173 | Machine tools and other plant for the Central Workshop, Mysore Railway. |
| 174 | Transformers for the Lloyd Barrage Works, Sukkur. |
| 175 | Diesel oil engine driven dragline excavators caterpillar type. |
| 176 | Workshop plant and machinery for the Lloyd Barrage Works, Sukkur. |
| 177 | Miscellaneous substation equipment for the Lloyd Barrage, Sukkur. |
| 178 | Poles for overhead power distribution for the Lloyd Barrage, Sukkur. |
| 179 | Electrification of Mari Indus, M. E. S. (Northern Command). |
| 181 | Portable pump for petrol. |
| 182 | Oil engine driven generators and switchboard for Razmak. |
| 183 | Flexible air hose for the Sutlej Valley Project. |
| 184 | Sub-station equipment for Municipal Board, Mussoorie. |
| 185 | Steelwork and roofing for stables for the Assistant Garrison Engineer, M. E. S., Bareilly. |
| 186 | Steam driven rope operated overhead travelling and traversing crane. |
| 187 | Paraffin engine D. C. generator set for Quetta. |
| 188 | Motor driven oil pump and piping for Power Supply, Lloyd Barrage Works. |
| 189/R | Steelwork and roofing for Power House, Shahjahanpur, M. E. S. |
| 190 | Hand operated overhead travelling and traversing crane. |
| 191 | Counterbalance boxes for sluice gates for Ferozepore Weir, Sutlej Valley Project. |
| 192 | Low pressure turbine drive generator set condensing plant and accessories. |
| 193 | Storage battery for Imperial Institute Veterinary Research, Muktesar. |
| 194 | Oil engine driven D. C. generator sets and switchboard for M. E. S., Jhansi. |
| 195 | Steelwork, Jaipur Power House, Jaipur Station. |
| 196 | Pumping equipment for Kohat District. |
| 197/R | Steelwork and roofing for M. E. S., Razmak, Waziristan. |
| 198 | Tube well with motor driven pump. |
| 199 | Ford lorry 1 ton for Orki, Sutlej Valley Project. |
| 200 | Steel trough flooring, M. E. S. |
| 201 | Water tube boiler for Forest Research Institute, Dehra Dun. |

## APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 202 | Double girder hand operated overhead travelling and traversing crane. |
| 203 | Combined dragline excavator and grabditcher for Sheikhpura Division, Punjab. |
| 204 | Pressed steel tanks for Assistant Garrison Royal Engineer, Lahore. |
| 205 | Electrically driven centrifugal pumps for the Sutlej Valley Project. |
| 206/R | Boulton water elevator for M. E. S. |
| 207 | Refined oil engine for the Assistant Garrison Royal Engineer, Lahore. |
| 208 | Vertical boiler for steam pump 100 lbs. per sq. inch pressure for M. E. S. |
| 209 | Self-supporting steel chimney for M. E. S. Clothing Factory, Shahjahanpur. |
| 210 | A 10-ton steam road roller for M. E. S., Abbottabad. |
| 211 | Hoist, drag-derricking and tipping ropes and slewing stays for No. 300 dragline excavator, Ruston's make. |
| 212 | Lancashire Boiler for the Opium Agent and Commissioner of Income Tax, U. P. |
| 213 | Mortar mills and motors for the Lloyd Barrage and Canal Construction, Sukkur. |
| 214 | Road roller equipment for the P. W. D., Irrigation Branch, Punjab. |
| 215 | Power distribution equipment for Jaipur. |
| 216 | Mild steel tanks for water storage for the Legislative Council Chambers, Imperial Delhi. |
| 217 | A steel barge for the Indian Cotton Committee. |
| 218 | Electrically driven pumping equipment for water supply, Bareilly, M. E. S. |
| 219/R | Steel trusses for workshops roof and steelwork and roofing for siding shelters for M. E. S., Shahjahanpur. |
| 220 | Mild steel tank with steel staging and complete with galvanized corrugated sheet steel curved roof for M. E. S., Ranikhet. |
| 221 | Petrol engine driven centrifugal pumping equipment, Fire Protection Scheme, R. A. F., Risalpur. |
| 222 | Self-sustaining pulley block and trolley for water supply, M. E. S., Bareilly. |
| 223/R | Storage tank, hand pumping storage cabinets and filters for lubricating oils for the Government Postal Press, Aligarh. |
| 224 | Power Station Plant for Ferozepore Cantonment. |
| 225 | Steam road rollers. |
| 226 | Lea coal meter for mechanical stoker. |
| 227 | Miscellaneous electrical distribution equipment for Jaipur. |
| 228 | Light railway materials for the Lloyd Barrage Works. |

# APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 229 | 150 B. H. P. 3,300 volts motor for the Ginning Factory, Jaipur. |
| 230 | Electrically driven tube well pumping sets for Multan Water Works. |
| 231 | Dog spikes for the Lloyd Barrage Works and Canal Construction. |
| 232 | Fishbolts and nuts, fishplates and 62 or 60 lbs. rails for the Lloyd Ba rage Works and Canal Construction. |
| 233/R | Portable stone crushers with screens and crude oil engine or alternatively electric motor driven for the Lloyd Barrage Works. |
| 234/R | Stone breaking plant screens hoppers and oil engines for the Lloyd Barrage and Canal Construction, Sukkur. |
| 235 | Right and left hand turnouts for the Lloyd Barrage and Canal Construction. |
| 236 | Target frames for M. E. S. |
| 237 | Mild steel moulding boxes for moulding concrete blocks for Lloyd Barrage Works. |
| 238 | Vertical cross tube boiler for the Agricultural Department, Government of India, Bangalore. |
| 239 | Steel bins for pneumatic tyre stores, M. E. S. |
| 240 | Disintegrators with portable steam engines for surkhi grinding. |
| 241 | Oil engine centrifugal pumping sets for sewage water, P. W. D., Punjab. |
| 242 | Light railway construction tract and stock for Lloyd Barrage Works, Sind. |
| 243 | Water supply plant for Lloyd Barrage Works. |
| 244 | Fishplates, fishbolts and nuts for Lloyd Barrage Works. |
| 245 | Galvanized steel tanks for Lloyd Barrage Works. |
| 246 | Tip trucks. |
| 247/R. | Plywood chests for Benares Opium Agency. |
| 249 | Black Asphalt and Bitumen for the Public Works Department, Central Provinces. |
| 250 | Rack bars for canal regulators, Irrigation Department, Baluchistan. |
| 251 | Oil piping and pump for Jaipur. |
| 252 | Rubber tyred platform trucks for carriage of boxes. |
| 253 | Lever boxes and lever connecting rods for the Lloyd Barrage Works. |
| 254 | Blocks and wire rope for Islam Division, Sutlej Valley Project. |
| 255 | Chlorinator tanks for M. E. S. |
| 256 | Switchboard for M. E. S., Rawalpindi. |
| 257 | Steam or hand operated crane for use on broad gauge for Sutlej Valley Project. |

## APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 258 | Jolly boats for Lloyd Barrage Works, Sind. |
| 259 | 2′-0″ gauge locos, tip trucks, 20-lb. rails, crossings. |
| 260 | One manual fire engine for the Lloyd Barrage Works. |
| 261 | Oil engine driven centrifugal pumping set for M. E. S., Waziristan. |
| 262 | Pipework and fittings for Jaipur Power Plant. |
| 263 | Rotary balancer set and switchboard for M.E. S., Lahore. |
| 264 | Electrically driven pumping equipment for Pumping Station, West Ridge, Rawalpindi. |
| 265/R. | Steelwork and roofing material for M. E. S. |
| 266 | Boring tools and plant for Central Canal, No. 2 Division. |
| 267 | 4-ton petrol lorries, Mandi Hydro-Electric Scheme. |
| 268 | Hoisting crabs, for the Executive Enigneer, Islam Division, Sutlej Valley Project. |
| 269 | Oil engine driven power pumping plant for Matheran Water Supply. |
| 270 | Sentinel Patent Locomotive. |
| 271 | Motor driven fuel oil pumping set and pipework for Power Station, Salt Range Division, Khewra. |
| 272 | Tip wagons. |
| 273 | 25 B. H. P. Kerosene oil engine for M. E. S., Mandalay. |
| 274 | Iron wheel barrows. |
| 275 | Boring tools and plant for Canal Construction, Western Circle, Karachi. |
| 276 | Alumina-ferric. |
| 277 | Direct current and single phase alternating current ceiling fans. |
| 278 | Railway material metre gauge. |
| 279 | Goods lifts for Imperial Record Office and Secretariat West Wing, Delhi. |
| 280 | E. H. T. main feeder panels for the Public Works Department, Delhi. |
| 281 | Steel materials for N. W. Railway. |
| 282 | Motor driven house service centrifugal pumping equipment for P. W. D., Delhi. |
| 283 | 20-30 H. P. Fiat Touring car, Model de luxe 510. |
| 284 | Internal combustion tractor and ploughs for the P. W. D., Delhi. |
| 285 | Motor launches and Norwegian skiffs. |
| 286 | Alumina-ferric for the Public Works Department, Delhi. |

## APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 287 | Mild steel moulding boxes, moulding concrete blocks. |
| 288 | Dogspikes. |
| 289 | Disintegrator, circular saw and band saw. |
| 290 | Two ply boards. |
| 291 | 5 K. W. oil engine driven generator sets switchboard and pumping sets for Jandola. |
| 292 | Asphalt and tar, etc., for the Public Works Department, Punjab. |
| 293 | Power Plant for Nagpur Station, G. I. P. Railway. |
| 294 | Portable internal combustion engine air compressor set. |
| 295 | Electrically driven overhead hoisting traversing and travelling cranes for the Chief Forest Officer, Andaman. |
| 296 | Tip wagons. |
| 297 | Water meters. |
| 298 | Motor launch. |
| 299 | Fire extinguishers. |
| 300 | Automatic and manual telephone equipment for Hydro-Electric Scheme, Punjab. |
| 301 | Hand or bullock power pump. |
| 302 | Steam Road Rollers Tanden Type. |
| 303 | Combined steam grab and dragline excavators. |
| 304 | Electrically driven centrifugal pumping equipment for M. E. S., Rawalpindi. |
| 305 | Four Tyne scarifier, Independent type. |
| 306 | Asphalt cookers and Bitumen boilers. |
| 307 | Steel water tank and staging. |
| 308 | Tin trays for the Postal Department. |
| 309 | 54′-0″ span supporting girders and sliding doors. |
| 310 | Vertical boi'er and feed pump. |
| 311 | Cement testing apparatus. |
| 312 | Double bogie cars and platform wagons, 2′-0″ gauge. |
| 313 | One K. W. petrol-paraffin engine driven dynamo set with switchboard for M. E. S., Murree. |
| 314 | Sheet steel flume. |

## APPENDIX IX-A—*contd.*

| S. R. No. | Subject. |
|---|---|
| 315 | Diesel oil engine and icemaking plant for the Maclagan Engineering College, Moghalpura, Lahore. |
| 316/R. | 3 spans of 23′-6″ clear. |
| 317 | Mild steel moulding boxes for moulding concrete blocks. |
| 318 | Shafting cranks, etc., for electrically driven punkhas. |
| 319 | Steam operated pump and steam plant for Poona Water Works. |
| 320/R. | Oil engine driven power plant for Kapadvanj Water Supply. |
| 322 | Bridge girders for A. B. Railway. |
| 323 | Portable Workshop for use with dragline excavator for Sukkur. |
| 324 | Steel flexible wire ropes, galvanized for the Public Works Department, Punjab. |
| 325 | Trucks, mild steel for 2′-6″ gauge for the Northern India Salt Revenue Department. |
| 326 | Weighbridge for broad gauge track for the Public Works Department, Punjab |
| | *(b) Framed during 1926-27.* |
| 327 | Steam driven pumping plant for the Public Works Department, Central Provinces. |
| 328 | Steel moorings buoys. |
| 329 | Road rollers for the Public Works Department, Central Provinces. |
| 330 | Motor driven pumping plant and chlorinator for M. E. S., Kohat. |
| 331 | Ash handling plant for the E. I. Railway, Muradabad. |
| 332 | Grain handling plant for the Public Works Department, Bihar and Orissa. |
| 333 | Motor launch for the Public Works Department, Punjab. |
| 334 | Steam loco. crane for 5′-6″ railway track for Public Works Department, Punjab. |
| 335 | Iron gates for canal. |
| 336 | Oil engine driven power plant for N. W. Railway, Peshawar. |
| 337 | 2½ K. W. paraffin oil engine driven dynamo. |
| 338 | One span 8′-2″ clear for Mysore Railways. |
| (a)339/R. | *Oil engine driven rock crushers and concrete mixers for Madras.* |
| 340 | Oil engine driven stone crushing plant for the Public Works Department, Punjab. |
| 341 | Oil engine driven D. C. set and switchgear for Imperial Institute of Veterinary Research, Muktesar. |

(a) Revised once.

## APPENDIX IX-A—*contd.*

| S. R. No. | Subject. |
|---|---|
| 342 | 51 spans of 20′ overall, with 11·1 ft. centres of main girder. |
| 343 | Filtrator or similar scale removing apparatus for Public Works Department, Punjab. |
| 344 | Tanks W. I. for fuel oil for Public Works Department, Sindh. |
| 345 | 2′ gauge locos. and trucks for the Public Works Department, Punjab. |
| 346 | One span 60′-0″ clear (Metre gauge). |
| 347 | Steam engine and boiler wood fired, for operating a ropeway for the Forest Department, Punjab. |
| *(a)349/R.* | *Top feed clack boxes for locomotives for the N. W. Railway.* |
| 348 | Road rollers gritting machine and Bitumen boilers for the Public Works Department, Punjab. |
| 350 | Peshawar Cantonment Power Station Plant steam engine driven for M. E. S. |
| 351 | Oil engine D. C. generators and switchboard, etc., for N. W. Railway, Bhatinda. |
| 352 | 200 G. I. watering troughs for Mobilization purposes. |
| 353 | Steelwork and roofing for covered stands for Mules, M. E. S. |
| 354 | 20/25 K. W. generator sets and 16 K. W. portable paraffin sets. |
| 355 | 10 K. W. generators and switchboard. |
| 356 | Pumping plant, crude oil engine and accessories for M. E. S. |
| 357 | Hand operated gantry crane, pulley blocks, etc., for Punjab Hydro-Electric Branch. |
| 358 | Roof trusses and sliding doors. |
| 359 | 2-100 K. W. at ·8 P. F. oil engine driven A. C. generators for Cauvary Metur Project for Irrigation Department, Madras. |
| 360 | 2-40 K. W. oil engine D. C. generator for N. W. Railway, Amritsar. |
| 361 | Paraffin oil engine driven generator. |
| 362 | Steel almirahs and galleries. |
| 363 | Oil engine pumping plant for Ranikhet. |
| *(b)364/R.* | *Oil engine pumping plant for Lansdowne.* |
| 365 | One electric motor for Railway Department, Railway Board. |
| 366 | Motor and controlgear for the Forest Research Institute, Dehra Dun. |
| 367 | Electric driven pumping sets switchgear and transformers for Gun Rock, Secunderabad. |

(*a*) Revised once.
(*b*) Revised twice.

## APPENDIX IX-A—*contd.*

| S. R. No. | Subject. |
|---|---|
| 368 | Crude oil engine driven three throw ram pumps and spares for Hangu Water Works, N. W. F. Provinces. |
| 369 | Steel troughs. |
| 370 | Vertical cross tube boiler for Wellington. |
| 371 | Two 50 B. Diesel engine driven Bucoyrus dragline excavators. |
| 372 | Alum mixing equipment and chlorinating plant for Muktesar Water Supply, Muktesar. |
| 373 | Plant for deep well boring in alluvial soil for the Agricultural Department, Punjab. |
| (a)374-R. | *Refrigerating pipe coils for cold storage rooms, etc.* |
| 375 | Hot water apparatus for M. E. S., Harnai. |
| 376 | Salt screening plant for Khewra. |
| (a)377/R. | *Motor boat for the Public Works Department, Delhi.* |
| 378 | Compressors set, A. C. motor driven, for Salt Department, Northern India. |
| 379 | Electric substation plant (Static transformer, condensor, etc.), for M. E. S., Jubbulpore. |
| 380 | Motor alternator set with transformer, switchgear and instruments for extra high tension tests for the Government Test House. |
| 381 | Oil engine driven tube well pumping set for N. W. Railway, Montgomery, Multan and Saharanpore. |
| 384 | Pumping plant crude oil engine and accessories. |
| 385 | Oil engine driven pumping plant and accessories for Arawali Water Works, M. E. S. |
| 386 | Tanks for fuel oil. |
| 387 | Tipping wagons broad gauge, for Lloyd Barrage Works, Sukkur. |
| 388 | Motor driven centrifugal pumping sets for Salt Mines. |
| 389 | Alternating current punkah motors, reduction gears and control panels for M. E. S., Agra. |
| 390 | Anchors. |
| 391 | Heating apparatus (hot water) for Rawalpindi (residence of G. O. C., Northern Command), M. E. S. |
| 392 | 40 K. W., D. C. 440/220 volts generating set, cooling plant crane, switchboard and connecting cables for Ambala N. W. Railway. |
| 393 | 30 K. W. 440/220 volts D. C. generating set, cooling plant, crane, switchboard and connecting cables for Khanewal, N. W. Railway. |
| 394 | Oil engine driven direct current generating sets for M. E. S., Jhansi. |

(*a*) Revised once.

# APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 395 | Windmill and pumping plant for the Agricultural Department, Punjab. |
| 396 | Motor driven centrifugal pumping sets for tube wells. |
| 397 | Electrically driven 3-throw ram pump for M. E. S., Ferozepore. |
| 398 | Road Rollers for Public Works Department, Central Provinces. |
| 399 | Chests, tool, empty (Blacksmiths, Carpenters and Wheelers). |
| 400 | Paper insulated lead sheathed and steel tape armoured D. C. cables and boxes. |
| 401 | Electrical testing equipment for the Assistant Controller of Inspection, Delhi. |
| 402 | Indicators of steam and internal combustion engines for the Assistant Controller of Inspection's Office, Delhi. |
| 403 | Steelwork for proposed shed at Kurla for Inspection and repair of electric cars. |
| 404 | V. I. R. single core cable and distribution boards for Lloyd Barrage Works, Sukkur. |
| 405 | Locomotive fittings for N. W. Railway. |
| 406 | Steel troughs. |
| 407 | 7 K. W. oil engine dynamo set, etc., for Nathiagali. |
| 408 | Tower wagon. |
| 409 | Pressed steel tank on steel staging. |
| 410 | Squirrel-cage motor and control gear for centrifugal pumps for Lloyd Barrage Works, Sukkur. |
| 411 | Kerosene oil engine driven pumping set for M. E. S., Sabathu. |
| 412 | Steel tanks and staging. |
| 413 | Portable compressor set for the C. P. District, M. E. S. |
| 414 | High tension paper insulated electric cable, and truck type cubicles for the Galogi Power Station, Mussoorie. |
| 415 | Steel wire rope (galvanized). |
| 416 | Power distribution equipment for the Mussoorie High Tension transmission system. |
| (a)*417/R.* | *Dragline excavator for Lower Chenab Canal, Punjab.* |
| 418 | Telescopic ladder for the Legislative Buildings, Delhi. |
| 420 | Target apparatus. |
| 421 | 3-ton portable workshop crane for Garrison Engineer, Secunderabad. |
| 422 | Additional condensing plant for Peshawar Power Station for M. E. S. |

(*a*) Revised once.

# APPENDIX IX-A—*contd.*

| S.R. No. | Subject. |
|---|---|
| 423 | Motor driven Sirocco fans for Salt Mines, Khewra. |
| 424 | Canal gate steel. |
| 425 | Steel Road Bridges. |
| 426 | Motor generator set and Battery equipment for Prince of Wales Royal Indian Military College, Dehra Dun. |
| 427 | Watering carts. |
| 428 | Air lift plant. |
| 429 | Water sterilizer chlorine gas type for the P. W. D., Delhi. |
| 430 | Electric Distribution Boards for the Government House, Imperial, Delhi. |
| 431 | Crude oil engine pumping plant and piping for L. B. W., Sind. |
| 432 | Steelwork and roofing for the Power House, Dehra Dun. |
| 433 | Oil engine driven tube well centrifugal and air lift pumps for N. W. Railway. |
| 434 | Oil engine driven generating set and switchboard for the M. E. S., Landikotal. |
| 435 | Oil engine driven pumping plant and steel storage tanks for the Public Works Department, Central Provinces. |
| 436 | Steel tank with staging, |
| 437 | Ice-making plant. |
| 438 | Roof trusses. |
| 439 | 66 K. V. A. motor alternator sets and switchgear for the electrification of "K" Supply Depôt, Peshawar. |
| 440 | Collapsible gate. |
| 441 | Wrought iron railing. |
| 442 | Shower baths. |
| 443 | Hot water boiler for the Central Heating System at the Sandeman High School, Quetta. |
| 444 | Hand operated overhead traversing and travelling crane stanchions, crane gantry and accessories. |
| 445 | Oil engine driven air lift tube well water pumping equipment for Sikandra, Agra. |
| 446 | Steel Road Bridges. |
| 447 | Oil engine driven generating set for the College, Rungpore. |
| 448 | Hydro-Electric Plant for the Upper Ganges Canal. |
| 449 | Oil engines for Reserve Engineering Stores, Lahore Cantonment. |

## APPENDIX IX-A—*concld.*

| S. R. No. | Subject. |
|---|---|
| 450 | Centrifugal and deep well pumps for Reserve Engineering Stores, Lahore Cantonment. |
| 451 | Oil engine driven generating set for the M. E. S., Malapuram. |
| 452 | Spans of various lengths for Shimoga Arsalu Railway (Mysore). |
| 453 | Steelwork and roofing for Office and Stores building, Mussoorie Electric Supply Extensions. |
| 454 | Switchboard and V. I. R. cable for Uhl River Hydro-Electric Project. |
| 455 | Tipping trailors for Uhl River Hydro-Electric Project. |
| 456 | Steelwork for M. S. Railings. |
| 457 | Overhead hand operated crane for Alimasjid, Peshawar. |
| 458 | Oil engine driven direct current generating set for M. E. S., Calicut. |
| 459 | Crude oil engine driven D. C., generators and electrically driven pumping set for Sararoga and Kotkai. |
| 460 | Steel road bridges. |
| 461 | Poles and insulators, overhead power distribution for Lloyd Barrage, Sukkur. |
| 462 | Copper conductors, cables and switches, for Lloyd Barrage, Sukkur. |
| 463 | Steel road bridges. |
| 464 | 3-80 K. W. sets for M. E. S., Faizabad. |
| 465 | Rail motor coaches for Mysore State Railway. |
| 466 | Electric Substation plant for Hugh Rose substation, M. E. S., Jubbulpore. |
| 467 | Hand operated overhead travelling and traversing crane. |
| 468 | Pressed steel tanks. |
| 469 | Electrical equipment for the conversion of Scotch Derrick hand operated cranes into electric drive for Lloyd Barrage Works. |
| 470 | 3-ton transformer trucks. |
| 471 | Cables and boxes for M. E. S., Lahore. |
| 472 | H. T. and L. T. iron clad switch pillars for the M. E. S., Lahore. |
| 473 | Incoming H. T. switch cubicles for the M. E. S., Lahore. |
| 474 | Grader and tractor for Communication Board, Lahore. |

## APPENDIX X.

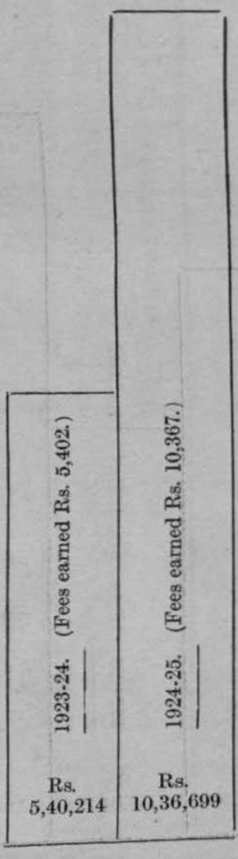
### Work done by the Inspection Branch.

### (*i*)—HEADQUARTERS.

(*Vide* para. 37 of the Report).

*Note.*— (i) All inspection work was accounted for through the Provincial Inspectorates from 1st April 1925; hence no figures are given for the years 1925-26 and 1926-27.

(ii) The diagrams represent fees earned and not those actually adjusted during the year.



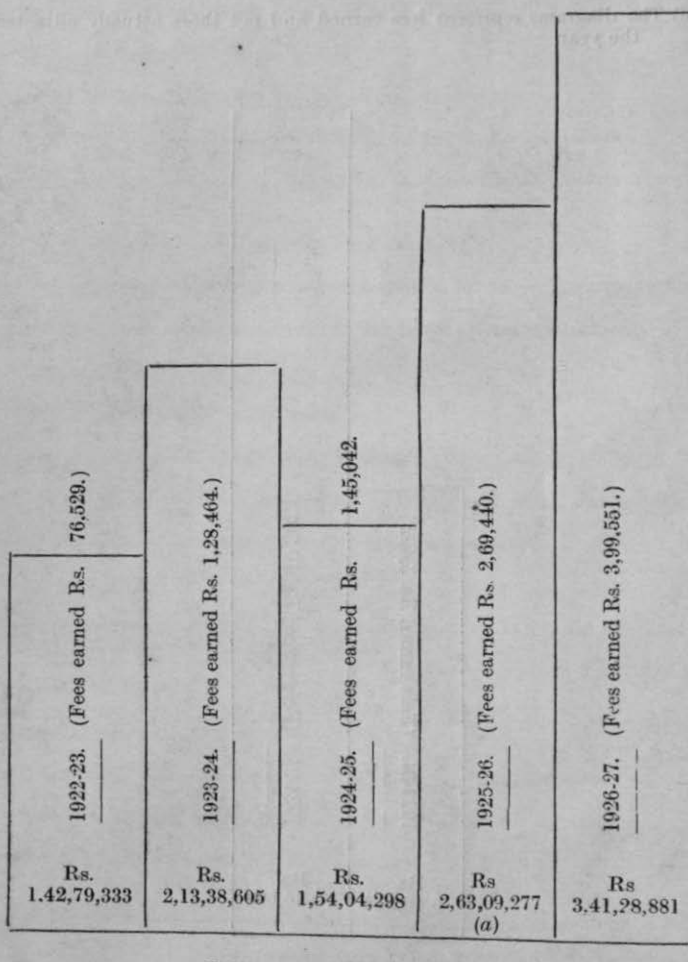

Value of work inspected.

## (ii)—Calcutta Inspection Circle.

(*Vide* para. 37 of the Report).

(*a*) The figures shown in the previous report have been revised on account of adjustments subsequently made.

*Note.*—The diagrams represent fees earned and not those actually adjusted during the year.




Value of work inspected.

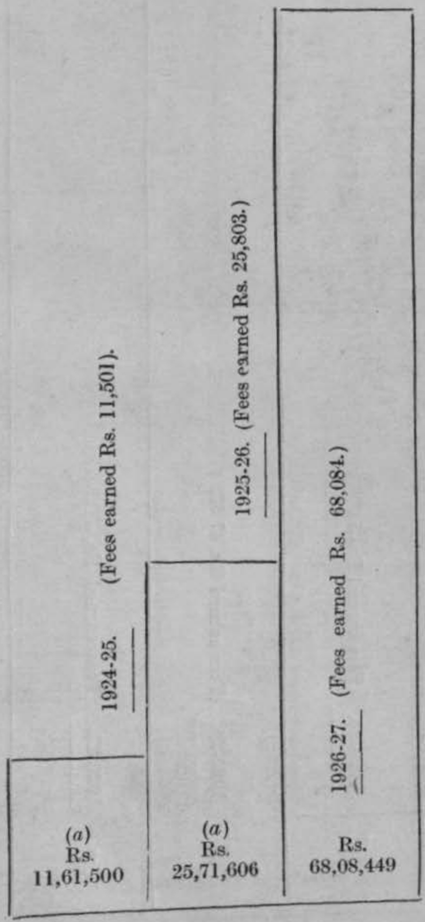
## (*iii*)—Bombay Inspection Circle.

(*Opened in July 1924.*)

(*Vide* para. 37 of the Report).

(*a*) The figures shown in the previous report have been revised on account of adjustments subsequently made.

*Note*.—The diagrams represent fees earned and not those actually adjusted during the year.




Value of work inspected.

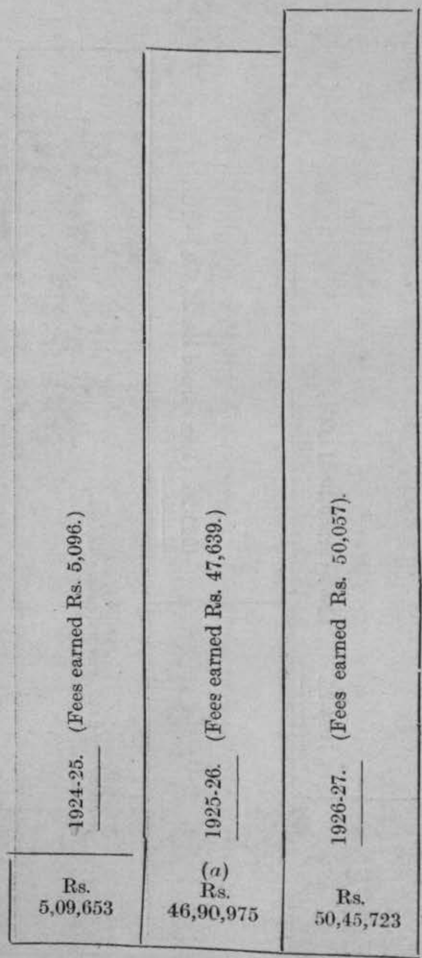
## (*iv*)—Cawnpore Inspection Circle.

(*Opened in September 1924.*)

(*Vide* para. 37 of the Report).

(*a*) The figures shown in the previous report have been revised on account of adjustments subsequently made.

*Note.*—The diagrams represent fees earned and not those actually adjusted during the year.



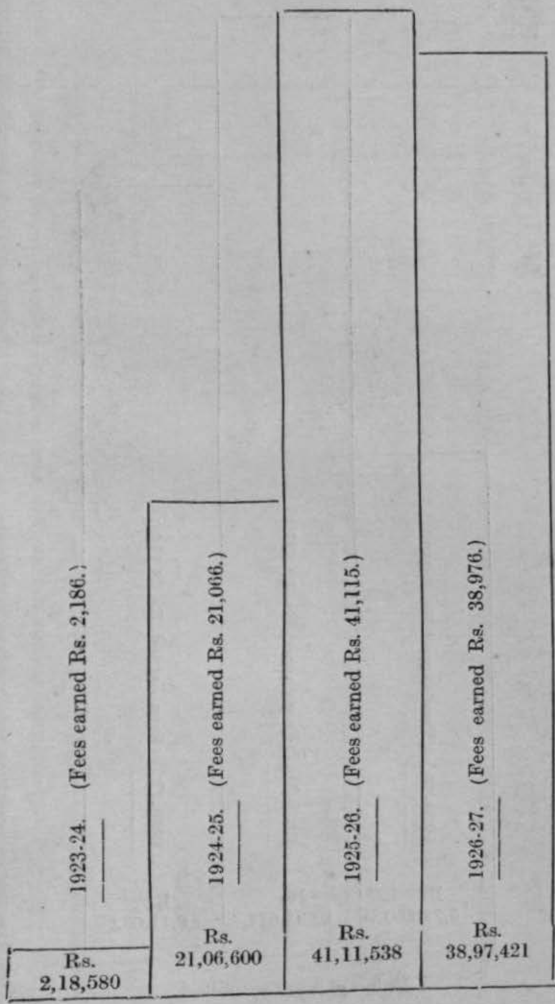

Value of work inspected.

## (v)—Karachi Inspection Agency.

*(Opened in January 1924.)*

(*Vide* para. 37 of the Report).

*Note.*—The diagrams represent fees earned and not those actually adjusted during the year.



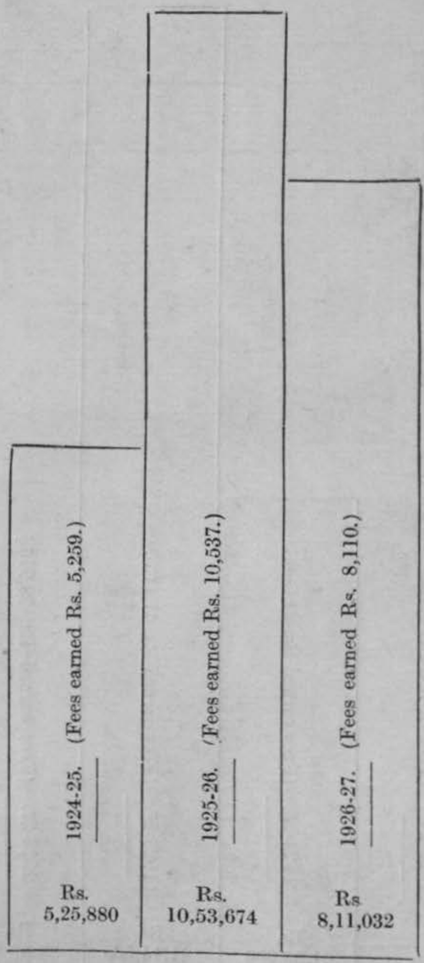

Value of work inspected.

## (*vi*)—Madras Inspection Branch.

(*Opened in July 1924.*)

(*Vide* para. 37 of the Report.)

*Note.*—The diagrams represent fees earned and not those actually adjusted during the year.



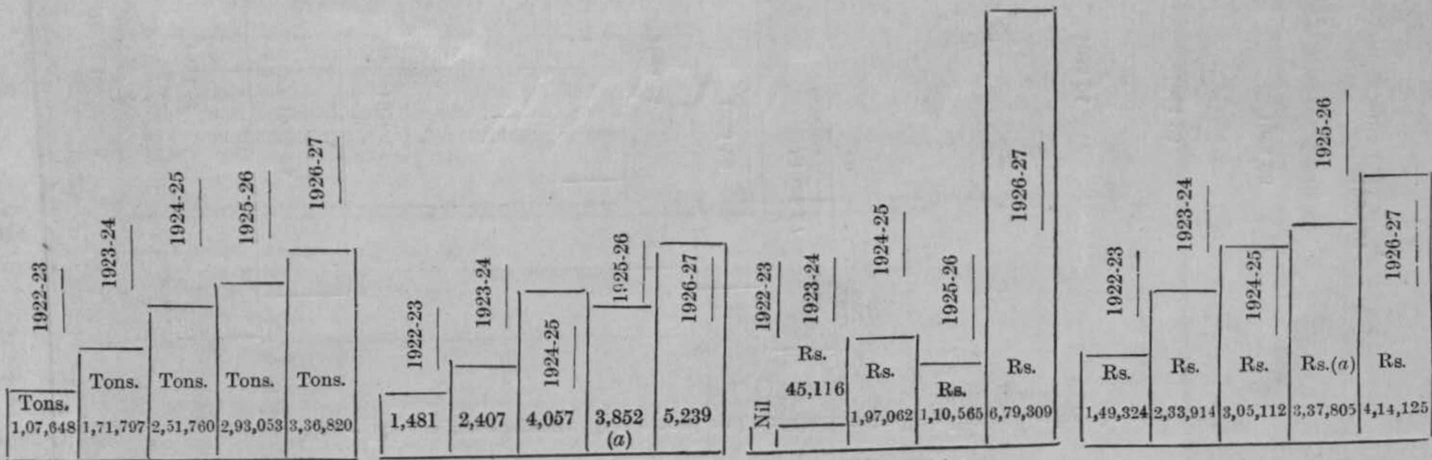

Value of work inspected.

## (*vii*)—Metallurgical Inspectorate, Jamshedpur.

(*Vide* paras. 37 and 47 of the Report)

(*a*) The figures shown in the previous report have been revised on account of adjustments subsequently made.

*Note.*—The diagrams represent fees earned and not those actually adjusted during the year.




Total quantity of material inspected and charged on weight.

Total number of tests carried out and samples analysed.

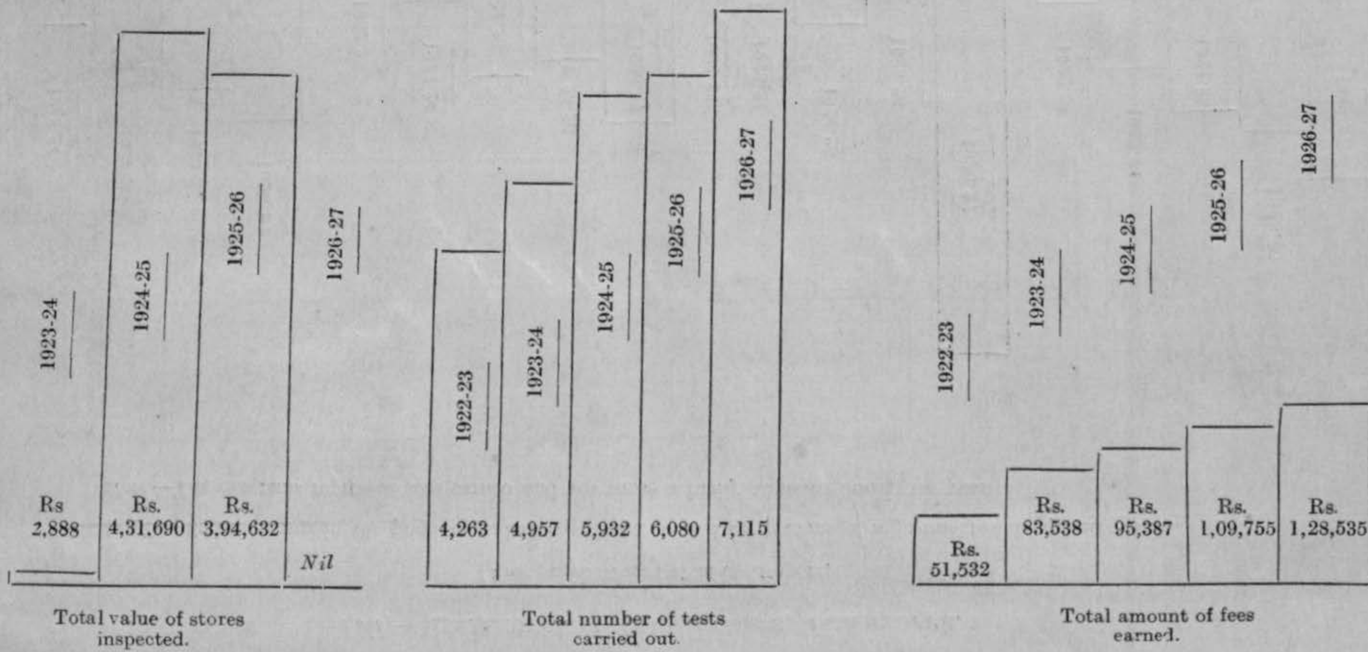
Total value of stores inspected and charged on value.

Total amount of fees earned.

## (*viii*)—GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

(*Vide* paras. 37 and 55 of the Report.)

*Note.*—The diagrams represent fees earned and not those actually adjusted during the year.



## (*ix*)—Abstract of Total Work done in the Inspection Branch of the Indian Stores Department.

(*Vide* para. 37 of the Report.)

*Note.*—The diagrams represent fees earned and not those actually adjusted during the year.

| Year | I. Stores inspected and charged on value | II. Stores inspected and charged on weight | III. Number of tests carried out and samples analysed | Fees earned |
|---|---|---|---|---|
| 1922-23. | Rs. 1,42,79,333 | Tons 107,648 | No. 5,744 | Rs. 2,77,385 |
| 1923-24. | Rs. 2,21,45,403 | Tons 171,797 | No. 7,364 | Rs. 4,53,504 |
| 1924-25. | Rs. 2,13,73,382 | Tons 2,51,760 | No. 9,989 | Rs. 5,98,830 |
| 1925-26. | Rs. 3,92,42,267 | Tons 293,053 | No. 9,932 | Rs. 8,42,094 |
| 1926-27. | Rs. 5,13,30,815 | Tons 3,36,820 | No. 12,354 | Rs. 11,07,438 |

# APPENDIX XI.

*Statement showing inspection work carried out for various authorities.*

(Vide paras. [illegible] of the Report.)

Material charged on weight — METALLURGICAL INSPECTORATE, JAMSHEDPUR.

| Authorities on whose behalf stores were inspected. | 1922-23. | 1923-24. | 1924-25. | 1925-26. | 1926-27. |
|---|---|---|---|---|---|
| — | Tons. | Tons. | Tons. | Tons. | Tons. |
| I. Inspection of stores against orders placed by the Indian Stores Department. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| II. Inspection of stores against orders placed by other authorities. | | | | | |
| 1. Central Government Departments. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 2. State Worked Railways | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 3. Company Worked Railways | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 4. Indian State Worked Railways | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 5. Provincial Governments | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 6. Public Bodies | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 7. Private Concerns and Indian States. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

Material charged on value — CALCUTTA (including [illegible] and Metallurgical Inspectorate, [illegible]), BOMBAY, CAWNPORE ([illegible]), KARACHI.

| Authorities on whose behalf stores were inspected. | Calcutta [illegible] | Calcutta [illegible] | Calcutta [illegible] | Calcutta [illegible] | Calcutta [illegible] | Bombay [illegible] | Bombay [illegible] | Bombay [illegible] | Bombay [illegible] | Bombay [illegible] | Cawnpore [illegible] | Cawnpore [illegible] | Cawnpore [illegible] | Cawnpore [illegible] | Cawnpore [illegible] | Karachi [illegible] | Karachi [illegible] | Karachi [illegible] | Karachi [illegible] | Karachi [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| — | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| I. Inspection of stores against orders placed by the Indian Stores Department. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| II. Inspection of stores against orders placed by other authorities. | | | | | | | | | | | | | | | | | | | | |
| 1. Central Government Departments. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 2. State Worked Railways | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 3. Company Worked Railways | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 4. Indian State Worked Railways | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 5. Provincial Governments | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 6. Public Bodies | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 7. Private Concerns and Indian States. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Total | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

Material charged on value — MADRAS, TOTAL.

| Authorities on whose behalf stores were inspected. | Madras 1922-23. | Madras 1923-24. | Madras 1924-25. | Madras 1925-26. | Madras 1926-27. | Total 1922-23. | Total 1923-24. | Total 1924-25. | Total 1925-26. | Total 1926-27. |
|---|---|---|---|---|---|---|---|---|---|---|
| — | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| I. Inspection of stores against orders placed by the Indian Stores Department. | .. | .. | 5,23,880 | 10,53,674 | 8,11,[illegible] | .. | 19,33,535 | 93,63,447 | 1,71,81,096 | 2,05,62,686 |
| II. Inspection of stores against orders placed by other authorities. | | | | | | | | | | |
| 1. Central Government Departments. | .. | .. | .. | .. | .. | 1,82,743 | 24,433 | 2,19,740 | 1,65,275 | .. |
| 2. State Worked Railways | .. | .. | .. | .. | .. | 1,15,70,375 | 1,40,01,618 | 69,02,672 | 1,59,40,408 | 2,06,69,510 |
| 3. Company Worked Railways | .. | .. | .. | .. | .. | 23,39,779 | 53,43,253 | 37,51,231 | 54,77,440 | 98,04,483 |
| 4. Indian State Worked Railways | .. | .. | .. | .. | .. | 6,375 | .. | 1,49,152 | 1,95,791 | 1,46,326 |
| 5. Provincial Governments | .. | .. | .. | .. | .. | 1,44,483 | 5,68,101 | 6,90,927 | 1,75,005 | 94,899 |
| 6. Public Bodies | .. | .. | .. | .. | .. | 35,578 | 2,74,288 | 2,32,106 | 96,184 | .. |
| 7. Private Concerns and Indian States. | .. | .. | .. | .. | .. | .. | 175 | 64,107 | 11,068 | 52,911 |
| Total | | .. | 5,23,880 | 10,53,674 | 8,11,[illegible] | 1,42,79,333 | 2,21,45,403 | 2,13,73,382 | 3,92,42,267 | 5,13,30,815 |

Includes [illegible] — [illegible]

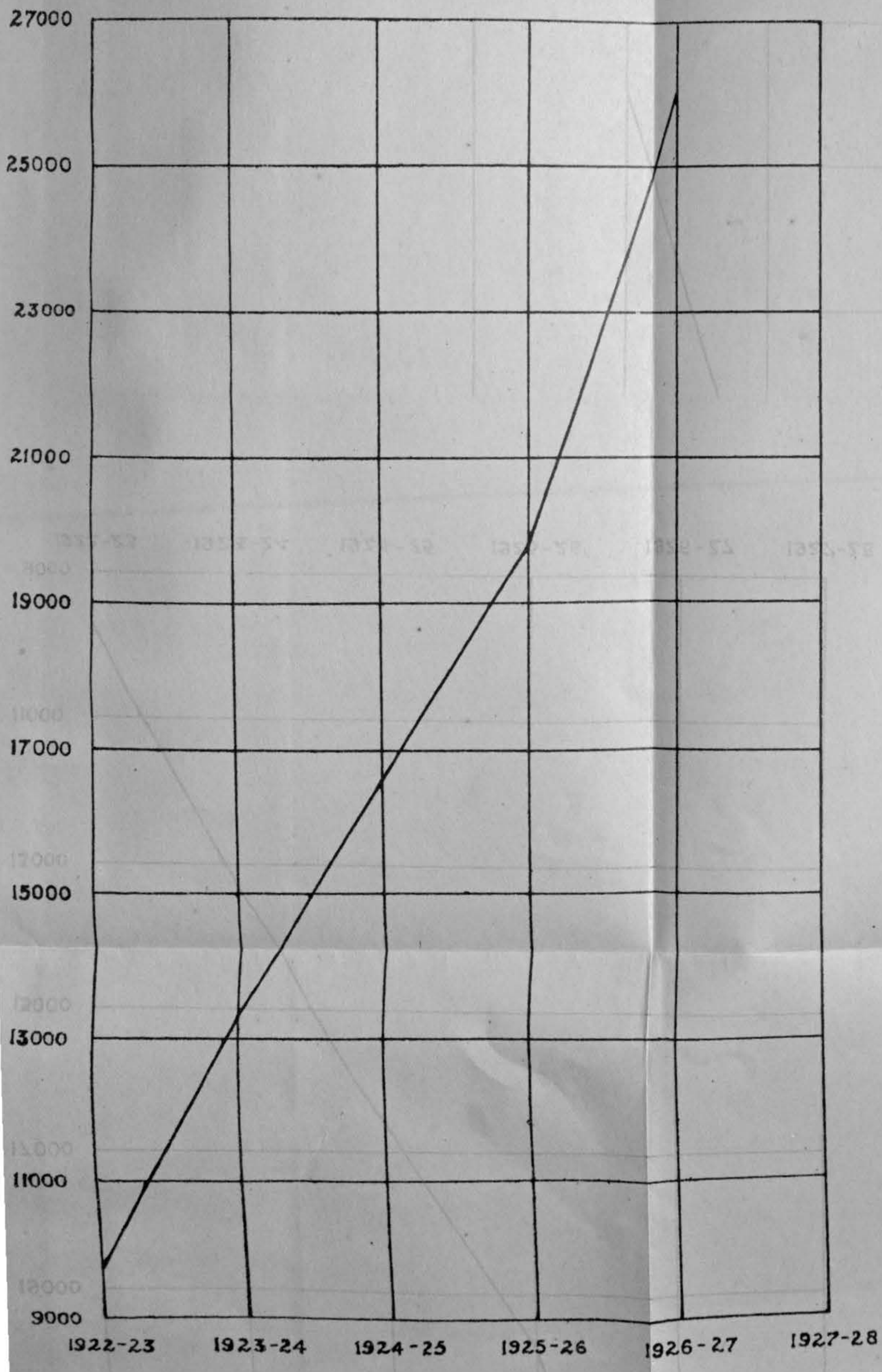
[illegible] — [illegible]

Includes [illegible]

APPENDIX XII

GRAPH SHOWING THE NUMBER OF ESTIMATIONS (DAILY STEEL ANALYSIS) CARRIED OUT AT THE METALLURGICAL INSPECTORATE DURING THE YEARS 1922-23 TO 1926-27

*(Vide paragraph 50 of the Report)*



# APPENDIX XIII.

## *Apparatus installed at the Metallurgical Inspectorate, Jamshedpur.*

(*Vide* para. 54 of the Report.)

### *Mechanical Laboratory.*

The machine shop is equipped with machinery and tools by means of which test-pieces and experimental samples of any desired shape can be prepared. The Metallurgical Inspector is in a position to undertake the testing and investigation of any metallic materials of whatever size which may be submitted to him.

The following testing-machines are available for mechanical tests :—

(1) A 50-ton vertical testing-machine of single-lever type, for tensile, compression, bending and shear tests.

(2) A 10,000-lb. vertical testing-machine for tensile tests on wires and on other material of small cross-section.

(3) A torsion testing-machine for wire.

(4) Hardness testing-machines for application of the Brinell hardness test—

(*a*) One machine has a useful range of load of 0 to 4,000 kilogrammes.

(*b*) Another machine has a useful range of load of 5 to 50 kilogrammes. This is valuable in the case of small samples and thin material such as strips or sheets, for detecting variations of hardness, etc.

(5) An impact testing-machine of the Izod single-blow type, with a maximum striking energy of 120 foot-pounds.

(6) A mirror-extensometer, by means of which the extension of a tensile test-piece, while under load, can be measured with an accuracy of about 1/1,25,000th inch. This enables the elastic limit, which for many purposes is the most important mechanical property of a ductile metal, to be determined with great accuracy.

(7) A 50-ton calibrating box for testing the accuracy of testing-machines up to loads of 50 ton in either tension or compression. By this means any deterioration of the main testing-machine can be detected and corrections made for the error ; and as the box is portable, different testing-machines can be compared with one another.

(8) A transverse testing-machine for measuring the breaking load and deflection of cast-iron bars under transverse load.

In addition, arrangements can usually be made with the Tata Iron and Steel Company Ltd., or the Jamshedpur Technical Institute, for the use of the following machines :—

(9) A falling weight test machine capable of delivering blows up to 35 foot-tons.

(10) A 100-ton tensile and compression testing-machine (horizontal).

(11) Impact testing-machines of the Charpy single blow type (chiefly used on ths Continent of Europe) with striking energies equivalent to about 220 and 1,450 foot-pounds respectively.

(12) A Sankey alternating bend test machine.

### *Miscellaneous.*

1. Potentiometer, Double Switch Bridge, Resistances standardised by the National Physical Laboratory and Standard Weston Cell by means of which resistances, including the resistance of high conductivity of copper wire and cables, can be accurately measured and voltmeters, ammeters, and standard resistances can be accurately calibrated.

2. A large latest type Reichert Metallographic Microscope with photo camera for examining and photographing the structure of metals. This apparatus, equipped with a series of objectives having focal lengths ranging from 100 mm. micropolar to 2 mm. apochromat is equally suited for low and high power microphotography.

3. Two gas-fired furnaces for experimental heat-treatment of metals—one being provided with a device for pre-heated air supply so that high temperatures can be obtained.

4. A platinum resistance thermometer with Whipple Indicator made by the Cambridge and Paul Instrument Company, suitable for measuring temperatures up to 1,200°C. and for calibrating pyrometers of other types.

5. Apparatus with Platinum Electrodes for electrolytic analysis with rotating electrodes.

## APPENDIX XIV.

(*Vide* para. 64 of the Report.)

*The Government Test House is equipped with the apparatus mentioned below by means of which tests can be carried out for Government and public Departments and private bodies at a small charge. The additions made during the year are shown in italics.*

### I.—PHYSICAL SECTION.

#### 1. Testing Machines and Apparatus.

*Engineering Sub-section.*

1. One 100-ton Buckton horizontal testing-machine, hydraulically controlled, for tensile, compression and transverse bend testing. This machine takes test-pieces up to a maximum size of 10 feet. It is suitable for steel and metal bars, steel wire ropes, chains, railway couplings, stone and concrete blocks, bricks, etc.

2. One 10-ton Avery testing-machine for tensile, compression and transverse bend testing.

3. One 10,000 lbs. Avery universal testing-machine for tensile, compression, transverse and torsion testing.

4. One Ewing extensometer complete with marking off jig for test-pieces.

5. One 12″ Newall measuring machine.

6. One 120 foot-lbs. Avery Izod type impact testing-machine for carrying out notched-bar tests on metals.

7. One Buckton double-sided cold and temper bend testing machine.

8. One Avery fatigue testing-machine. This machine is of the rotating bar type in which the test specimens are subjected to a uniform bending moment while revolving about their own axes.

9. One Brinell hardness testing-machine for determining the hardness of all metals and alloys.

10. One 5 foot-ton Avery impact testing-machine for carrying out impact tests on railway couplings and draw-gears.

11. One Thurston oil testing-machine for testing oils under practical conditions of use.

12. One hydraulic testing-machine for testing stoneware and other pipes up to 18″ in diameter and 3′-0″ in length.

13. One Bailey hydraulic testing-machine for carrying out porosity and pressure tests on cocks, valves, etc.

14. One Brotherhood pressure gauge testing apparatus, 0-6,000 lbs. per square inch.

15. Budenberg gauge test sets, one suitable for pressures of 0-2,000 lbs. per square inch and another for pressures of 0-5 tons per square inch.

16. One "Compactum" hydraulic pressure test-pump, 1,500 lbs. per square inch capacity, for general hydraulic pressure tests.

17. One Brotherhood vacuum gauge testing apparatus.

18. Plant and apparatus for testing vacuum-brake rubber fittings.

19. One vaccum gauge testing apparatus with mercury columns.

20. One 20-ton dynamometer (Salters).

21. One 0-50 ton Amsler standardising box for calibrating testing-machines.

22. One Avery 10-cwt. platform weighing machine.

23. One microscope.

*24. One Vickers patent diamond hardness testing-machine.*

### 2. Machine Tools.

1. One 6″ centres S.S. and S.C. heavy duty Buckton lathe.

2. One 4″ centres S.S. and S.C. Holbrook lathe.

3. One Buckton test-piece preparing machine for shaping flat test-pieces for the determination of tensile strength.

4. One Butler shaping and slotting machine.

5. One machine for polishing metal specimens for micro-examination.

6. One Smith and Coventry sensitive drilling machine.

7. One hand saw.

8. One power hack saw.

9. One Emery grinder.

10. One light motor grinder.

11. One grindstone, treadle driven.

12. One end-runner paint mill.

13. One cone paint mill.

### 3. Cement Testing Sub-section.

1. One Adie tensile testing-machine.

2. One Smith Edward testing machine.

3. Vicat needle setting time testing sets.

4. Le Chatelier soundness testing sets.

5. One Ro-tap sieving machine.

6. Ice-chest for taking setting times under various temperature conditions.

7. One thermograph.

8. Dry and wet bulb thermometer.

9. One setting time clock.

10. Maturing tanks, damp boxes, moulds, scales, balances, etc.

### 4. Road Metals Testing Sub-section.

1. One Deval type 4-cylinder attrition testing-machine.

2. One ball mill.

3. One Dorry type abrasion tester.

### 5. Textile Testing Sub-section.

1. One Goodbrand lea tensile testing-machine, 0-500 lbs.

2. One Goodbrand yarn testing-machine, 0-5 lbs.

3. One Dronsfield wrap reel.

4. One 12″ Goodbrand twist tester.

5. One Goodbrand fabric 0-1,000 lbs. testing machine.

6. One Avery cloth fabric testing-machine, 0-1,200 lbs.

7. One Casartelli microscope cloth counting glass.

8. One Goodbrand conditioning apparatus with balance and wire cage, etc.

### 6. Electrical Testing Sub-section.

1. One Nalder Bros. and Thomson Ohmmeter.

2. One Elliot Brothers Wheatstone Bridge with 6-volt portable battery.

3. One complete set of Pritchett and Gold and E. P. S. Co., Ltd., storage battery, 250 volts, consisting of 135 S5 type cells, capacity 80 ampere-hours, with plug board. switch board and instruments.

4. One Elliot Brothers D. C. ammeter with four range 1·5-600 amperes.

5. One Elliot Brothers A. C. ammeter 600 amperes with single phase transformer.

6. One Weston A. C. double range ammeter 5 and 10 amperes.

*7. One Weston A. C. double range ammeter 1 and 2 amperes.*

8. One Elliot Bros. A. C. and D. C. double range volt-meter 300 and 600 volts.

9. One Elliot Bros. D. C. volt-meter 600 volts.

10. One Weston accumulator testing volt-meter.

11. One Weston three-phase wattmeter, 1·5 kilowatts.

*12. One Weston single-phase double-range wattmeter 150 and 300 watts.*

13. Two Weston current transformers (open centre 1200-5 amperes).

14. Two Weston potential transformers (6600 or 3300-110 volts).

*15. One portable frequency meter.*

16. One Everett-Edgcumbe standard photometer bench.

17. One 6″ Lawrence and Mayo anemometer.

### 7. Miscellaneous.

1. One copper oven for determining the moisture contents of bricks, concrete blocks, etc.

2. One portable forge.

3. Anvils, vices, etc.

## II.—CHEMICAL SECTION.

### 8. General Laboratory.

1. Two motor driven gas compressors.

2. One motor driven water pump set.

3. One carbon disulphide distillation apparatus.

4. One Cambridge and Paul thermo-couple type pyrometer with three spare tubes containing the couple.

5. One Cambridge and Paul optical pyrometer, polarising type.

6. Two muffle furnaces.

7. Two combustion furnaces for organic analyses.

8. One centrifugal machine, holding 4 tubes of 100 c.c. each.

9. Three bomb calorimeter sets for determination of the calorific value of coal and other fuels.

10. One electric furnace by Brady and Martin, special type, for determining the amount of volatile matter evolved from coal at different temperatures.

11. One Hutchinson tar tester for determination of viscosity of coal-tar.

12. Accessories for Fleming's carbon combustion apparatus (used in steel analysis) consisting of phosphoric anhydride jar, zinc tower, mercury gauge, mercury valve, gas washing bottles, reducing valve, silica tube, etc.

13. One B. T. L. penetrometer (for bitumen testing).

14. One melting point determination apparatus, Ring and Ball method.

15. One Nalder Brothers volt-ammeter testing set (with instrument ranges up to 600 volts and 600 amperes).

16. One G. E. C. ammeter 30 amperes.

17. Two six-volt batteries and one twelve-volt battery.

18. Ten chemical balances.

19. Two rough balances.

20. One Westphal balance.

21. One microscope.

22. Four ovens.

23. Six water baths.

24. One vacuum pump.

25. One combined still and steam oven set.

26. One still (for distilled water).

*27. One Streamline filter.*

*28. One sandbath with burners.*

### 9. Oil Testing Sub-section.

1. One Zeiss Butyro-refractometer.

2. One Herschel emulsifier, motor driven.

3. One Dubosq colorimeter.

4. One Deely friction machine for determining the co-efficient of static friction between lubricated surfaces.

5. Eight viscometers, Redwood's ordinary pattern.

*6. One viscometer, Redwood's electrically heated.*

7. One viscometer, Redwood's admiralty pattern, for determining the viscosity of oil fuels.

8. Four Pensky-Martens closed flash point apparatus (high flash).

*9. One Pensky-Martens closed flash point apparatus.*

10. Two Abel-Pensky flash point apparatus (low flash).

11. One Abel's flash point apparatus (low flash).

12. One Archbutt vaporimeter for determining the volatility of oils used for lubricating steam engine cylinders.

13. Two Conradson carbon residue apparatus.

*14. One Conradson carbon residue apparatus.*

15. One cloud and pour test apparatus capable of holding six test-jars.

16. Two cloud and pour test apparatus capable of holding one test-jar only.

17. One Standard distillation apparatus with metal condenser for kerosene.

18. One distillation apparatus for petrol (Dunston and Kewley).

19. One standard distillation apparatus with screen, etc., for petrol, conforming to the standard laid down by the I. P. T.

20. One apparatus for estimation of total sulphur in gasolene as adopted by the I. P. T.

21. One Lovibond tintometer.

22. Six Hinks' single wick table lamps for kerosene burning tests.

23. Four chemical balances.

24. Two water-baths.

25. One still.

26. One geyser.

27. One hot air-oven.

*28. One apparatus, Dean and Stark's, for determination of water in fuel oils.*

*29. One apparatus for determining melting point of paraffin wax.*

*30. One circular copper water bath with burners.*

# APPENDIX XV.

*Statement showing the various articles tested at the Government Test House, during the year 1926-27.*

(*Vide* para. 64 of the Report.)

| Serial No. | Article. |
|---|---|
| 1 | Acids. |
| 2 | Aluminium sulphate. |
| 3 | Ammonia liquor. |
| 4 | Ammonium sulphate. |
| 5 | Antimony. |
| 6 | Armature. |
| 7 | Asbestos. |
| 8 | Ashes. |
| 9 | Asphalt. |
| 10 | Bags, nail, horse shoe. |
| 11 | Belting. |
| 12 | Benzol. |
| 13 | Bitumen. |
| 14 | Blacking |
| 15 | Blades, knife. |
| 16 | Blankets. |
| 17 | Bolts. |
| 18 | Boxes, wooden |
| 19 | Brass. |
| 20 | Brass rod. |
| 21 | Bricks. |
| 22 | Bricks, blue. |
| 23 | Bricks, fire. |
| 24 | Bronze. |
| 25 | Canvas. |
| 26 | Carbide (Calcium). |
| 27 | Cement. |
| 28 | Chains. |
| 29 | Clay. |
| 30 | Cloth of various description (woollen and cotton). |
| 31 | Coal. |
| 32 | Coils of a cold-storage plant. |
| 33 | Coke. |
| 34 | Comparators, hardness, Vickers and Poldi. |
| 35 | Concrete cylinders. |
| 36 | Concrete cubes. |
| 37 | Concrete slabs. |
| 38 | Copper ingot. |
| 39 | Copper rod. |
| 40 | Copper sheeting. |
| 41 | Copper sulphate. |
| 42 | Oorundum ore. |
| 43 | Culverts, iron. |
| 44 | Cutlery. |
| 45 | Cyanite. |
| 46 | Deposits from water jacket of oil engine. |
| 47 | Deposits from water pipe. |
| 48 | Effluent. |
| 49 | Fans and Regulators (electric). |
| 50 | Ferric alumina. |
| 51 | Fibre. |
| 52 | Flux. |
| 53 | Gauges, pressure. |

## APPENDIX XV—*contd.*

| Serial No. | Article. | Serial No. | Article. |
|---|---|---|---|
| 54 | Glass. | 84 | Meters. |
| 55 | Glycerine. | 85 | Meters, electric. |
| 56 | Gold. | 86 | Mica. |
| 57 | Graphite. | 87 | Mortar. |
| 58 | Greases. | 88 | Myrobalans. |
| 59 | Hooks, drawbar. | 89 | Naphthalene. |
| 60 | Hydro-carbon. | 90 | Nitrate of Soda. |
| 61 | Ink. | 91 | Oils, cake. |
| 62 | Iron, cast. | 92 | Oils, creosote. |
| 63 | Iron hoops. | 93 | Oils, fish. |
| 64 | Iron ore. | 94 | Oils, fuel. |
| 65 | Iron, pig. | 95 | Oils, kerosene. |
| 66 | Iron, wrought. | 96 | Oils, lubricating. |
| 67 | Kankar. | 97 | Oils, seed. |
| 68 | Kleine patent flooring. | 98 | Oils, vegetable. |
| 69 | Lacquer. | 99 | Opium. |
| 70 | Lead ingot. | 100 | Ores. |
| 71 | Lead, pig. | 101 | Paints and pigments. |
| 72 | Leather. | 102 | Petrol. |
| 73 | Lime. | 103 | Phosphorus, red. |
| 74 | Lime, hydraulic. | 104 | Pins, shackle, drawbar. |
| 75 | Linseed cakes. | 105 | Pipe fittings. |
| 76 | Manganese and manganese ores. | 106 | Pipe, galvanised. |
| 77 | Meal, bone and meat. | 107 | Pipes, hose. |
| 78 | Mercury. | 108 | Pipes, stoneware. |
| 79 | Metal, antifriction. | 109 | Pipes, vacuum. |
| 80 | Metal, Delta. | 110 | Pitch. |
| 81 | Metal, road. | 111 | Plaster, Paris. |
| 82 | Metal, type. | 112 | Polish, French. |
| 83 | Metal, white. | 113 | Pulley blocks. |

## APPENDIX XV—*concld.*

| Serial No. | Article. | Serial No. | Article. |
|---|---|---|---|
| 114 | Putties, cotton, khaki. | 136 | Steel (mild). |
| 115 | Putty. | 137 | Stone, Cubes. |
| 116 | Rails. | 138 | Stone slabs. |
| 117 | Ropes of kinds (hemp, manilla, wire, etc.) | 139 | Stones. |
| 118 | Rubber. | 140 | " Stopskal." |
| 119 | Saltpetre. | 141 | Tar. |
| 120 | Sand. | 142 | Thal-potasimeter. |
| 121 | Screw couplings. | 143 | Thermometer. |
| 122 | Sediment from an oil. | 144 | Thread, sewing. |
| 123 | Sheets, galvanised. | 145 | Tin. |
| 124 | Sheets, corrugated. | 146 | Tin, block. |
| 125 | Shellac. | 147 | Tubes, glass. |
| 126 | Slag. | 148 | Turpentine. |
| 127 | Sleepers, steel, Railway. | 149 | Twine (Jute, Hemp, etc.). |
| 128 | Soap. | 150 | Vacuum brake fittings. |
| 129 | Soda ash. | 151 | Varnish. |
| 130 | Soil. | 152 | Water. |
| 131 | Springs, helical. | 153 | Wax. |
| 132 | Spring steel plates. | 154 | Wax, bees. |
| 133 | Spirits. | 155 | Wires (copper, steel, etc.). |
| 134 | Spirit Methylated. | 156 | Yarns. |
| 135 | Steel (cast). | 157 | Zinc tile. |
| | | 158 | Zinc Chloride. |

# INDEX.

PARAS.

A

Advisory work . . . . . . . . . . 6, 46, 67

B

Bombay Inspection Circle . . . . . . . . 40
*Bombay Purchase Circle* . . . . . . . . . 24
Bounties—
On steel rails, fishplates and ingots . . . . . . 52
On wagons . . . . . . . . . . . 35

C

Calcutta Inspection Circle . . . . . . . . 38, 39
Calcutta Purchase Circle . . . . . . . . . 23
Cawnpore Inspection Circle . . . . . . . . 42
*Contracts, running and rate* . . . . . . . . 28

E

Engineering and miscellaneous stores—
Purchase of —— . . . . . . . . . . 20, 22
Engineering Purchase Branch—
Bifurcation of the —— . . . . . . . . . 9
"Erection at site" orders . . . . . . . . 34
Expenditure—
Statistics of revenue and —— . . . . . . . 70

F

Financial position . . . . . . . . . . 7, 70, 71
Firms—
Advice to —— . . . . . . . . . . 6, 46, 67
Inspection of —— . . . . . . . . . . 46
Registration of —— . . . . . . . . . 65, 66

G

Gazetted staff—
Recruitment of the —— . . . . . . . . . 11
General Summary . . . . . . . . . . . 1

PARAS.

H

Home indents—
Scrutiny of —— . . . . . . . . . . . 69

I

Important purchases—
Details of —— during the year . . . . . . 22
Indianisation . . . . . . . . . . . . 12
Indigenous and imported stores—
Distribution of purchases between —— . . . . . 21
Industries—
Encouragement of Indian —— and local purchases . . . . 65-69
Inspection Branch— . . . 3—6, 30—46
Bombay Inspection Circle . . . . . . . . 40
Calcutta Inspection Circle .. . . . . . . . 38, 39
Cawnpore Inspection Circle . . . . . . . . 42
Government Test House, Bombay . . . . . . . 41
Government Test House, Calcutta . . . . . . . See under Test House.
Head Quarters . . . . . . . . . . . 30
Karachi Inspection Agency . . . . . . . . 43
Madras Inspection Branch . . . . . . . . 44
Metallurgical Inspectorate . . . . . . . . . See under Metallurgical Inspectorate.
Summary of the activities of the —— (general) . . . . 3
Summary of the activities of the Provincial Circles . . . . 5
Work of the —— . . . . . . . . . . . 37, 45
Inspection of firms . . . . . . . . . 46
Intelligence Branch—
Advisory work . . . . . . . . . . . 6, 67
Encouragement of Indian industries and local purchases . . . 65-69
Registration of firms . . . . . . . . . 65-66
Scrutiny of home indents . . . . . . . . 69

K

Karachi Inspection Agency . . . . . . . . 43
Karachi Purchase Agency . . . . . . . . 25

L

Local Governments—
Utilisation of the Stores Department by the major —— . . . . 17
London Stores Department—
Comparison with the work of the —— . . . . . . . 29
Lists of stores indented for by Government Departments on the — . 68

PARAS.

M

Madras Inspection Branch . . . . . . . . . 44
Metallurgical Inspectorate . . . . . . . . . 4, 47-54
Bounties on steel rails, fishplates and ingots certified by the Metallurgical Inspector . . . . . . . . . . . 52
Estimations carried out at the laboratory of the —— . . . . 50
Inspection and testing equipment at the —— . . . . . 54
Inspection of various articles at the —— . . . . . 48
Investigations made by the —— . . . . . . . . 51
Residential accommodation for the staff of the —— . . . 53
Sampling and analysis carried out at the —— . . . . . 49
Summary of the activities of the —— . . . . . . 4
Work done at the —— . . . . . . . . . . 47

Miscellaneous stores—
Purchase of engineering and —— . . . . . . . . 20, 22

O

Operations—
Progress in extending the field of —— . . . . . 16

Organisation . . . . . . . . . . . . 8-14
Changes in the —— of the Department during 1926-27 . . . 8
Of the Department at the end of the year . . . . . . 10

P

Pamphlets—
Issued by the Indian Stores Department during the year 1926-27 . 36
Procedure . . . . . . . . . . . . 15
Provinces—
Distribution of purchases among various —— . . . . . . 21
Provincial Inspectorates . . . . . . . . . . 38-44
Provincial Purchase Agencies . . . . . . . . . 23-26

Purchase Branch— 2, 18-29
Summary of the activities of the —— . . . . . . . 2
Work of the —— . . . . . . . . . . . 18, 27

R

Recruitment—
For the subordinate technical staff . . . . . . . 13
Of the gazetted staff . . . . . . . . . . 11
Registration of firms . . . . . . . . . . 65, 66
Revenue—
Statistics of —— and expenditure . . . . . . . . 70
Running and rate contracts . . . . . . . . . 28

PARAS.

S

Schedules of requirements . . . . . . . . . . . 32
Scrutiny —
of home indents . . . . . . . . . . . . 69
of technical schemes . . . . . . . . . . . 33
Specifications . . . . . . . . . . . . 6, 31
Staff—
Important changes in the gazetted —— during the year . . . 14
Recruitment for the Subordinate Technical —— . . . . . 13
Recruitment of the gazetted —— . . . . . . . . 11
Summary . . . . . . . . . . . . . 1-7

T

Technical advice to manufacturers . . . . . . . . . 6, 46, 67
Test House, Bombay . . . . . . . . . . . 41
Test House, Calcutta . . . . . . . . . . . 4, 55-64
Cement testing at the —— . . . . . . . . . . 63
Chemical section (general) of the —— . . . . . . . 59
Electrical laboratory at the —— . . . . . . . . 57
Mechanical laboratory at the —— . . . . . . . . 58
Oil samples tested at the —— . . . . . . . . . 61
Paint tests carried out at the —— . . . . . . . . 60, 62
Physical section of the —— . . . . . . . . . 56
Summary of the activities of the —— . . . . . . . 4
Tests carried out at the —— . . . . . . . . . 64
Testing equipment at the —— . . . . . . . . . 64
Work done at the —— . . . . . . . . . . 55
Textile stores—
Purchase of —— . . . . . . . . . . . 19, 22

W

Work done . . . . . . . . . . . . . 15-46

MGIPC—M—V-6-53—25-8-27—450.